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London County Council.

EIGHT YEARS
OF
TECHNICAL EDUCATION AND
CONTINUATION SCHOOLS

(MOSTLY EVENING WORK)

IN
TWO PARTS.

PART I.—History and Administration.

PART II.—Subjects of Instruction.

REPORT BY THE EDUCATION OFFICER.

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REPORT BY THE

COMMISSIONERS OF

TECHNICAL EDUCATION

CONTINUATION OF

REPORT BY THE COMMISSIONERS OF

TECHNICAL EDUCATION

FOR THE YEAR 1912-13

Part II.—*General and Special*

Part I.—*General and Special*

REPORT BY THE COMMISSIONERS OF



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EIGHT YEARS OF TECHNICAL EDUCATION AND CONTINUATION SCHOOLS (MOSTLY EVENING WORK).

Part I.—HISTORY AND ADMINISTRATION.

SECTION	PAGE
I.—Introduction	5
II.—The Technical Education Board	7
III.—The London School Board	9
IV.—Other Organisations	10
V.—Character of the Education	11
V (a).—Character of the Education (<i>continued</i>)	13
VI.—Consultative Committees	16
VII.—University Extension and Workers' Educational Association	18
VIII.—Expansion and Co-ordination... ..	20
IX.—Teachers	27
X.—Cost	29
XI.—Scholarships	34
XII.—Polytechnics and Technical Institutes (Mr. Briscoe)	37
XIII.—Original Research in Polytechnic Institutions (Dr. Kimmins)	42
XIV.—Schools of Art (Messrs. Christie and Thomas)	47
XV.—Evening Schools—	
1. General character of the Schools	49
2. Commercial Centres (Mr. Chalk)	50
3. Ordinary Evening Schools (Mr. Bray)	53
4. Managers	57
5. Books and Apparatus	58
6. Advertising	58
7. Enrolment	59
8. Attendance	60
XVI.—Trade Schools—Girls (Miss Durham), Boys (Mr. Smail), Domestic Economy Schools (Miss Cade and Miss Gordon)... ..	62
XVII.—Other Institutions : Settlements : Clubs	66
XVIII.—Changes on the Sub-Committee	83

Part II.—SUBJECTS OF INSTRUCTION.

XIX.—Higher Commercial Instruction (Mr. Jackson)	85
XX.—Shorthand (Mr. Jackson)	87

SECTION	PAGE
XXI.—Handicraft (Mr. Barter)	88
XXII.—Dressmaking, Millinery, Needlework (Miss Cade and Miss Gordon)	89
XXIII.—Music in Evening Schools (Dr. Borland)	90
XXIV.—Physical Training (Mr. Chesterton)	91
XXV.—English (Dr. Boas)	92
XXVI.—Modern Languages (Mr. Brereton)	96
XXVII.—Bookkeeping and Accountancy (Mr. Cropper)	100
XXVIII.—Conclusion	103

Appendices.

A.—Chart showing admissions to Evening Schools from 1882 to 1911-12	facing 104
B.—Return of occupations of students attending evening classes in the administrative County of London during the session 1908-9	105
C.—Charts showing enrolment and attendance, session 1911-12	facing 106
D.—Statement showing cost per 100 student hours of the maintenance (Teachers and class materials only) of departments of Polytechnics, Technical Institutes and Schools of Art, during session 1909-10	107
E.—Fees	111
F.—Awards gained by London Students in the National Competition since 1907	112
G.—List of the more important special reports on subjects connected with technical education and evening schools	116
H.—Note on Continuation Schools in Germany	117
I.—(a) List of Schools of Art and Schools of Arts and Crafts maintained by the Council... ..	120
(b) List of Science, Art and Commercial Centres... ..	120

PART I.—HISTORY AND ADMINISTRATION.

I.—INTRODUCTION.

1. On 1st May, 1904, the Council became the local education authority for London. Since that date, annual reports, dealing with all branches of educational administration but one, have been written by the Education officer and published by the Council. The branch excepted is that of technical education and evening schools. This report therefore aims at giving a general sketch of the development of that branch of the Council's educational system during the eight years 1904–1912. As the report endeavours to record the educational influences at work, rather than to chronicle detailed events, it may be not uninteresting to consider for a little the forces and events which have laid the foundations of the present system.

Historical
summary.

2. Public concern as to industrial competition, which was excited by the exhibitions of 1851 and 1862, and intensified by the severe depression of trade and distress of 1884–6, may, without hesitation, be regarded as the source from which the technical education movement of the last quarter of the nineteenth century derived its main strength.

The Science and Art Department, though established a few years earlier, as a department of the Board of Trade, was in reality the product of the first exhibition.

The great strides being made by manufacturing industries in Germany had caught public attention and were generally attributed to her system of technical education.

The reports of the Royal Commission on Technical Education (appointed 1882) directed the public concern towards our own educational defects and prepared the way for the Technical Instruction Acts and the schemes of the polytechnics. Meanwhile, a threatened attack on the City Companies had turned some of their activities into an educational direction in harmony with the prevalent mood, as well as in keeping with their own original objects. The City and Guilds of London Institute was established in 1878. It has done a great public service. To it we owe the great Engineering College at South Kensington, the Finsbury Technical College, and some minor institutions, as well as the establishment of a technological department (which took over the technological examinations of the Society of Arts) whose functions have been, on the whole, limited to the granting of certificates as the result of examinations in technical subjects. For some years the technological department was the medium by which the City and Guilds of London Institute paid grants on the results of examinations in technological subjects. These grants were withdrawn when local authorities received powers under the Technical Instruction Acts.

The Technical Instruction Act of 1889 empowered local authorities (county and town councils) to supply, or aid the supply, of technical education out of the rates; but gave no parliamentary grant. The rate was not to exceed the limit of one penny in the pound. Later on, funds came from what has been known as the residue grant. In 1890 certain Customs and Excise duties, raised by Parliament with the intention of compensating publicans, were not applied to that purpose, but were distributed to local authorities under the terms of the Local Taxation (Customs and Excise) Act, 1890. After devoting £300,000 to police superannuation, the residue of something like three-quarters of a million was granted to local authorities for technical education or relief of rates. This money, from its origin, was called the "whiskey money," and from its being a residue, the "residue" grant. In London £142,727 was paid during the year 1890–1, and the residue grew gradually to a sum of £234,705 in 1910–11. During the year 1911–12 £176,993 was received. Year by year the Council appropriated a part of this grant for technical instruction purposes; and the appropriation was the whole fund which the Technical Education Board had to administer.

The
Technical
Instruction
Acts.

The London County Council (established in 1888–9) thus made its first acquaintance in 1893 with educational work in the administration of the Technical Instruction Acts of 1889 and 1891, through its Technical Education Board.

The Council
and
technical
education.
The City
Parochial
Charities.

3. Technical education in London owes much to what has been called a predatory Act of Parliament—the City Parochial Charities Act of 1883.

In 1878 a Royal Commission was appointed to report on the parochial charities of the City of London, as it appeared that by reason of the increase in the funds and the diminution or extinction of the objects of these charities the income was far more than sufficient to provide for all the proper objects of such charities. The outcome of the report was the City of London Parochial Charities Act, 1883. Among other things, the Act provided that the charities in 107 parishes of the City of London should, after seven years, be administered by a corporate body (the trustees) of the London Parochial Charities; and that the Charity Commissioners should publish statements setting out the charitable endowments of these 107 parishes, distinguishing the secular from the ecclesiastical endowments. For a period of seven years powers were given to the Charity Commissioners, assisted by a Special Commissioner appointed for the purpose, to prepare schemes for the preparation of the secular fund, or any portion thereof, and these schemes became binding on the Trustees. The income of the secular fund was found to be £50,000 a year, and of the ecclesiastical fund £35,000. It is only with the secular fund that this report is concerned.

Before handing over these funds to the trustees the Charity Commissioners made certain capital grants out of the corpus of the charities. Among capital grants out of the secular fund were £11,750 to the Regent-street Polytechnic, £6,750 to the People's Palace, £45,000 to the Northampton Institute, £6,000 to the Royal Victoria Hall and to Morley College. The Trustees (generally known as the Central Governing Body) entered upon their duties in 1891. The *income of the central fund since then has been—

1892	...	...	£44,540	1902	...	...	£53,777
1893	...	...	46,075	1903	...	...	53,873
1894	...	...	43,693	1904	...	...	55,373
1895	...	...	48,092	1905	...	...	55,318
1896	...	...	51,199	1906	...	...	57,620
1897	...	...	47,682	1907	...	...	55,294
1898	...	...	51,317	1908	...	...	† 57,068
1899	...	...	48,567	1909	...	...	56,466
1900	...	...	53,734	1910	...	...	61,015
1901	...	...	52,145	1911	...	...	57,334

The grants out of the central fund are divided under three heads—

- (i.) Polytechnics and kindred institutions.
- (ii.) Open spaces.
- (iii.) Miscellaneous.

The following annual grants to polytechnics and kindred institutions are made by the Central Governing Body according to schemes of the Charity Commissioners—

Regent-street Polytechnic	...	...	...	£3,500
People's Palace ...	...	...	...	3,500
Northampton Polytechnic	...	...	...	3,350
Birkbeck College	...	...	...	1,000
City of London College	...	...	...	1,000
Victoria Hall and Morley College	...	...	...	1,000
Borough Polytechnic	...	...	...	2,500
Battersea Polytechnic	...	...	...	2,500
South-Western Polytechnic	...	...	...	1,500
Working Men's College and College for Men and Women	...	...	...	400
Northern Polytechnic	...	...	...	1,500
North-Western Polytechnic	...	...	...	1,500

In addition to the above grants (obligatory) under the central scheme, the trustees have out of the surplus income of the central fund applied at their discretion the following sums in support of polytechnics—

1891	...	...	£356	1902	...	...	£14,712
1892	...	...	13,500	1903	...	...	15,402
1893	...	...	4,850	1904	...	...	17,389
1894	...	...	7,031	1905	...	...	14,670
1895	...	...	7,122	1906	...	...	14,158
1896	...	...	8,692	1907	...	...	16,925
1897	...	...	8,809	1908	...	...	15,916
1898	...	...	10,175	1909	...	...	15,254
1899	...	...	10,001	1910	...	...	16,034
1900	...	...	9,479	1911	...	...	17,364
1901	...	...	12,026				

I am informed that since the establishment of the scheme in 1891 the foundation has contributed a sum of £729,162 to the various polytechnics in the metropolis, exclusive of the capital grants made in that year. The sum mentioned includes both discretionary and obligatory grants.

4. In 1882 the School Board had begun to establish a system of evening schools. (See section III.)

From 1893 onwards, the Technical Education Board (to which the Council had delegated large powers of independent action) and the School Board for London were the local authorities for technical education and evening school education, respectively; and they pursued almost wholly independent careers, carrying out imperfectly coordinated or rather uncoordinated policies. There was also little coordination, at all events in the earlier years, between the efforts of the two central authorities—the Science and Art Department, which promoted the establishment of science and art schools and classes by means of its system of grants and the Education Department, which supported and supervised the evening schools of the School Board. Science and art classes of all kinds were carried on in the evening schools and supported by the grants of the Science and Art Department.

5. A further word is necessary as to the origin of the polytechnics. The scheme of the Charity Commissioners for the utilisation of the secular part of the income derived from the

* The figures represent the actual receipts and not the amounts receivable in each year.
† Not including £5,000 advanced by the Charity Commissioners out of capital.

consolidation of the City Parochial Charities has already been mentioned. The attention of the Commissioners, influenced by the public desire for technical education, was specially directed to Mr. Quintin Hogg's social and educational work in the polytechnic at Regent-street, and the result of their enquiries was embodied in a policy for the maintenance of a number of institutes (industrial institutes) modelled somewhat closely after the (Regent-street) prototype (social and educational), and offers were made by the Commissioners to a number of districts of an endowment of £1,500 or £2,500 a year, generally on condition that an amount representing approximately the capitalised value of the endowment offered was subscribed for capital purposes. A committee, presided over by Mr. Evan Spicer, was established to secure the foundation of the three institutes in the south of London outlined in the proposals of the Charity Commissioners. The Goldsmiths' Company undertook full responsibility for the foundation and maintenance of a technical and recreative institute at New Cross, and the committee obtained the funds necessary to establish polytechnics in the Borough and at Battersea. Woolwich Polytechnic received no endowment; its establishment was due to local private enterprise. Since 1895 Woolwich Polytechnic has, however, enjoyed an income of £1,000 a year from the Central Governing Body. The proposals of the Charity Commissioners for the north of London did not meet with such a hearty public response, and were not so completely successful. The South-Western Polytechnic was established in Chelsea, adjoining the public library, on a valuable site presented by Lord Cadogan; the Northern Polytechnic, largely through the assistance of the Clothworkers' Company, was erected on an extensive site in Holloway-road. The Northampton Institute in Clerkenwell was established out of capital funds provided largely (£40,000) by the trustees of the City Parochial Charities and (£6,000) by the Skinners' Company. The site was given by the late Marquis of Northampton with the consent of the present marquis (then Lord Compton); and a private Act of Parliament was obtained in order to secure the title to the estate. The Northampton Institute, the Birkbeck College and the City of London College were federated as the City Polytechnic, under the management of a supreme governing body (the council of the City Polytechnic); they possessed a common membership but had different objects. The Birkbeck and the City of London Colleges were to provide instruction in science, art and commercial subjects; the Northampton Institute was to confine its educational work to purely technical and trade subjects but to provide social and recreative facilities for all the members of the polytechnic. The three institutions together constituted one polytechnic, and it was the duty of the Council of the City Polytechnic, on which the governing bodies of the three constituent institutions were represented, to see that their work was properly co-ordinated. The scheme of the Charity Commissioners provided for the establishment of a polytechnic in North-west London and another in Hackney. For the North-Western Polytechnic, a site at the corner of Prince of Wales-road and Kentish-town-road, was purchased by public subscriptions. The freehold was purchased, but unfortunately certain occupation leases with about 20 years to run were not secured, and it is only quite recently that the question of buildings for the North-Western Polytechnic has emerged amid surroundings of an educational character considerably different from those of 1892. The scheme for Hackney was abandoned, but later on the Hackney Institute was founded by funds provided by the Technical Education Board, the foundation of Sir John Cass and certain public subscriptions. The People's Palace formed the industrial institute for East London. The Drapers' Company gave the site (that of Bancroft's school), public subscriptions were raised by Sir Edmund Hay Currie, and the institute was endowed by the Charity Commissioners (under terms of the scheme following the City Parochial Charities Act of 1883) with an income of £3,000 per annum. After a period of financial stress, the Drapers' Company made themselves responsible for its maintenance under the management of a governing body on which the company was accorded predominant representation. Since the foundation of the People's Palace newer forces have been in operation; the educational work of the People's Palace has become the East London College of London University, whilst its social and recreative work is but the shadow of that which caught the imagination of "All Sorts and Conditions of Men."

6. The collection of funds to establish the polytechnics and the consequent distribution of institutions is easily understood when it is remembered that 25 or 30 years ago it was much more common to think of London in terms of separate and somewhat loosely-connected localities than it is to-day.

The local policy of large and strong institutions serving as centres of influence for various districts, and gradually attracting within their sphere of influence the miscellaneous classes scattered over London, while at the same time opening branch classes for outlying parts of the district, also found strong support in the Technical Education Board.

II.—THE TECHNICAL EDUCATION BOARD.

1. Such were the forces at work when the London County Council appointed the Technical Education Board in 1893. One of the first acts of the Board was to obtain a report on the condition and extent of technical education in London from Mr. (now Sir) Hubert Llewellyn Smith. That report formed the basis of the Board's operations. In the main the Board adopted a broad policy of aid to institutions and (by means of scholarships) to individuals.

The Technical Education Board.

2. The Board found it necessary, however, to supplement the existing institutions and those established by independent governing bodies with their aid by providing two classes of

Its general policy.

Grants in aid.

institutions for the conduct and efficiency of which the Council (through the Technical Education Board) should be wholly responsible. The Board, it may be mentioned here, pursued the policy of aid to institutions so much that even in a number of cases when circumstances brought the direct management and control of institutions like the Hackney Institute or of the Woolwich Polytechnic within their reach, the Board sought the foundation of a separate institution under the control of an independent governing body. The Board assumed that by means of their annual grants towards the maintenance of the institution and by the statutory representation of the Council on the governing body, they could secure all control necessary to efficiency.

3. The Board's grants were of three kinds; capital grants, towards site or buildings; equipment grants; and grants towards maintenance. Minor technical institutions were aided by the Technical Education Board according to an assessment of their needs. Schools of Art received £100 a year and attendance grants on a definite scale for many years. The Technical Education Board also aided secondary schools by grants for buildings, equipment and maintenance. The definition of technical instruction in the Technical Instruction Acts permitted grants in aid of science, art and modern languages in secondary schools and it would be difficult to overstate the value of the assistance given by the Technical Education Board to secondary schools at a period (not so far remote) when these schools were sadly in need of help, and when there was no Government grant for secondary education. The grants in aid of polytechnics and minor technical institutions (including schools of art) also proved invaluable in establishing all over London institutions of a more or less local character. Grants for buildings were made by the Board, as a rule, on a small scale, and in such cases only towards the provision of a technical department in an existing institution.

Its relation to the University of London.

The Technical Education Board also lent their support to technical instruction in its most advanced forms. The University of London Act of 1898, which became operative in 1900, enabled London University to become a teaching as well as an examining university. The various subjects of university study were organised into faculties, and emphasis was given to the technical aspect of university education by the establishment of a faculty of engineering, and a faculty of economics, all through the influence of the Board.

In support of engineering, chemistry, economics, modern languages, and education, the Technical Education Board gave the university a grant of £10,000 a year.

Further, in 1903, the Council consented to the principle of giving, on certain conditions, an annual grant of £20,000 to the proposed Imperial College of Science and Technology.

Institutions established by the Board or transferred to the Board.

4. Mention has already been made of the Board's direct supply of technical education in supplement of the existing provision. This direct supply was two-fold—central and local; the central institutions offered instruction of such a highly specialised character, demanding such specialisation in teachers and equipment that the institutions could not be repeated even in the larger local industrial areas, and that students were drawn to them from all over London. Of this class, the London Day Training College, the Central School of Arts and Crafts and the School of Photo-Engraving and Lithography are the best examples. The local institutions provided instruction of a more ordinary character in districts in which no public institutions under a responsible governing body existed which could be utilised for the Council's requirements. The Paddington Technical Institute and the Poplar Technical Institute are examples of this class of maintained institution.

There are also some institutions whose management came into the hands of the Technical Education Board and were retained, *e.g.*, Shoreditch Technical Institute, the Westminster Technical Institute, the Camden, the Clapham, the Putney and the Hammersmith Schools of Art.

The growth and usefulness of these various institutions was one of the main results of the Technical Education Board's policy and will in all probability be one of the most permanent records of the Board's services.

One of the minor features of the Board's policy towards institutions had considerable influence on Government action. I refer to the steps taken to do away with the system of private enterprise and private profit on which some of the minor institutions were conducted. This system (or practice rather) had outlived its usefulness.

The Board's scholarship system.

5. The idea of aids to individuals—a scholarship system—existed long before the Technical Education Board. But that Board evolved new applications of it to all forms of education which the Board could legally aid, and gave so generously as to stimulate largely a supply of able students and to act as a recruiting agent for primary school teachers.

The scholarship system of the Technical Education Board was indeed so successful that in 1905 the Council gave one part of it—that in aid of secondary education—a very wide extension; so much so, that the results of that extension are just beginning (1911) to show that it has unfolded new problems—such as that of occupation for scholars at the close of their school or college career—whose solution, seeing that they will profoundly affect the whole educational edifice, will demand much earnest attention. The art and technological scholarships were modified in extent and character in 1909.

III.—THE SCHOOL BOARD FOR LONDON.

1. Night schools existed before School Boards, but they were few in number, and the instruction they gave—like that in the day schools before 1870—was rudimentary. The Act of 1870 laid down no restrictions as to school hours. The old night schools were, therefore, continued under the new Act, teaching the three R's to illiterates, and at first without regard to age. They were maintained out of the rates and by grants from the Education Department. The School Board's only authority for legal expenditure—the Elementary Education Act, 1870—empowered School Boards to provide elementary schools for "children"; and an elementary school meant "a school or department of a school at which elementary education is the principal part of the education there given." The history of evening schools in the 80's and 90's is largely a record of conflict between these two restrictions and the standards and ideals of the School Board. The Act of 1890 (referred to later on) removed the requirement that, as a condition of the parliamentary grant to an evening school, elementary education should be the principal part of the education given therein.

Evening schools in the earlier days of the School Board.

2. In the very early days of the School Board a few evening schools were opened. Pressure of other work crushed out the consideration of any general scheme. The education offered was quite elementary. Even at this early stage, however, the view was held that education of a more advanced kind than that given in the elementary (day) schools should be offered in evening schools to those unable or unwilling to go into secondary schools. The first attempt to establish a system of evening schools in London was made in 1873, but partly owing to regulations as to the number of students required before opening or to prevent closing an evening class, and partly owing to difficulties about teachers' salaries, these first efforts failed. It is suggested in the "Work of the London School Board" (an excellent account of the Board's work compiled in 1904) that failure was due not only to inherent difficulties in the regulations but to the fact that the Board at the time (1875) was incurring very severe criticisms of its alleged lavish expenditure, and that therefore it was resolved to drop a branch of the work which was costly and not popular. Although direct management was dropped for a time, the Board agreed to allow to voluntary agencies the use for evening schools of the Board's buildings at a small rent.

3. It was not until 1882 that the Board again assumed direct responsibility. In that year 9,000 pupils were enrolled, of whom one-third were women and girls. The classes formed were of two kinds, elementary and advanced.

The elementary classes were conducted under the conditions of the Code. They were regarded merely as repetitions of the day schools with their (day schools') then maximum age limit of 18, their standard distinctions, their examinations for grant by His Majesty's Inspector and their limitations on subjects beyond reading, writing and arithmetic. The time was, however, rapidly passing when there would be any considerable portion of the population who had missed the elementary school and were anxious to make good the deficiency. For the advanced classes the Board undertook no financial responsibility. They continued the practice of granting the use of the school buildings at a nominal fee to responsible teachers and others who had to rely for funds on the fees of students and grants of the Science and Art Department. The direct interest of the teachers in the fees and in the grants on "passes" in the Science and Art Department examinations exposed the evening schools to the criticism which it took many years to throw off, viz., that the evening schools existed for the teachers.

4. For ten years (1885–1895) the character of the evening schools was in some measure affected by the work of the Recreative Evening Schools Association. This association was a voluntary body of educationists, seeking, at their own cost, objects sufficiently indicated by the name they assumed. The code set up intellectual standards only—such as they were—and the association endeavoured to popularise evening schools and to increase their influence by the introduction of more attractive subjects, such as vocal music, lantern lectures, clay modelling, domestic economy, because the day had gone by for teaching the three R's to illiterates, and the time had come when a genuine evening continuation school was required. The "hooligan" problem had also arisen. The association had grasped one of the permanent characteristics of the problem of superadding education to the day's labour in London—intellectual food of a more palatable and easily digestible character has to be provided for the less robust natures and the more jaded appetites. To-day this characteristic finds strong expression in all sorts of social gatherings, clubs, and societies, some closely and others loosely connected with the evening school organisation. In 1895 the Board took over the association's apparatus, and as the aims of the association had gradually been included in the Board's programme, the association dissolved, its work being done. The "hooligan" had brought about the end of the Recreative Evening Schools Association in the London school buildings. The association was able to attract him to the schools but its machinery was incapable of keeping him under discipline when there, and the buildings and equipment suffered so much at his hands that the Board were obliged to take over the direct responsibility for the management of the schools. The code of 1890, which made evening schools possible, apart from the three R's, was largely the result of the work of the Recreative Evening Schools Association.

The Recreative Evening Schools Association.

The Evening School Code of 1890.

5. Session by session the evening schools grew in numbers and importance, although a crisis was twice brought about by the auditor of the Local Government Board. On the first occasion the auditor compelled the Board to refuse admission at maintained classes to pupils

The
Cockerton
judgment.

over 21 years of age. This was the old question of "children" of the Act of 1870. Some considerable relief was obtained from the Act of 1890, which declared that elementary education only was no longer to be a condition of grants to evening schools. The Cockerton judgment of 1901 induced the second crisis. It was decided that the Board could not charge to the rates the cost of (1) science and art classes conducted under the direction of the Science and Art Department; nor (2) of instructing persons not "children" within the meaning of the Education Acts. This judgment delayed the advance of the Board's ideals and standards, and, perhaps it also may be added, arrested competition with the work of other authorities. It certainly rendered necessary some change in the law. Pending the passing of the Acts of 1902 and 1903, temporary expedients were adopted by Parliament or the Board of Education to prevent the destruction of the whole of the higher work of the School Board.

It is interesting to recall as a measure of the change which had come over the character of evening schools that the Board which was surcharged by the auditor in 1887 for educating "adults" was in 1899 giving an undertaking to the Technical Education Board that the evening schools "would not offer instruction specially intended for university degrees."

To prevent the decapitation of the evening school system threatened by the Cockerton judgment a short enabling Act was passed in 1901. The operation of this Act was extended by further Acts until the 30th April, 1904. By these Acts county councils were enabled to authorise School Boards to continue the evening work which had been declared illegal. In effect the Acts permitted county councils to delegate their power to conduct such classes to the School Boards. As has been seen in a previous section, the county councils obtained their powers from the Technical Instruction Acts. The enabling Acts also remind us that in 1901 a change in the local administration of education was in sight.

6. The diagram Appendix A (facing page 104) shows the numbers enrolled at evening classes session by session from 1882-3 until 1911-12. The very large increase in numbers in 1890-1 was due to the more liberal code of 1890, which anticipated the Education Act of the same year (see p. 9). The abolition of fees explains the extraordinary increase (from 57,000 to 109,000) in the session 1898-9. The Cockerton judgment is responsible for the decrease in 1901-2, and the further small decrease in the following year is accounted for by the re-imposition of fees to pupils over 16 years of age.

Develop-
ment of
evening
school work.

It has been seen that the earliest evening schools were established either to repair the defects of, or as a substitute for, elementary education. Freedom of curriculum required by the advance in general education and so long an ideal of the Board—freedom which was finally to bring on the Cockerton judgment—came slowly but certainly. One great obstacle was removed when in 1890 the code permitted grants on individual pupils as the result of inspection in respect of higher subjects without requiring the same students first to satisfy His Majesty's Inspector in an examination in reading, writing and arithmetic. Another obstacle was cleared out of the way a few years later (1895) when the Directory of the Science and Art Department substituted payment on the results of inspection for payments on the results of examination. It is difficult to-day to realise that these important achievements are of so recent date. With the exception of the Cockerton judgment, the last years of the School Board's administration of its evening schools system were not marked by any event of outstanding importance. Consolidation of the work in hand; changes in organisation, the opening of commercial centres, more liberal staffing; the appointment of special lecturers in history, law, literature, economics, and so on; the extension of physical culture; efforts at co-ordination with the work of the day schools; the services of medical practitioners in first aid and ambulance classes; and other improvements of a miscellaneous but substantial character marked the close of a period of great activity, of which not the least remarkable feature was that 150,000 adolescents and adults were being educated in premises of which not a single brick nor a square foot of space had been provided for this particular purpose.

IV.—OTHER ORGANISATIONS.

Other
organisa-
tions.

1. Before concluding this brief historical *résumé* some notice must be given of other organisations which assisted in the development of our system of technical education and evening schools. The work of the City and Guilds of London Institute has already been mentioned. The Carpenters', the Clothworkers', the Cordwainers', the Drapers', the Goldsmiths', the Leathersellers', the Plumbers', and the Skinners' Companies had all taken an active share in building up the system of technical education. It has been shown that two important bodies—the Technical Education Board and the Central Governing Body under the City Parochial Charities Act—aided the polytechnics by capital or maintenance grants or both. In order that each body might become thoroughly conversant with the other's action and so avoid overlapping of efforts, the London Polytechnic Council was established in 1894. This council was a joint committee consisting of members of the Technical Education Board who were also members of the Central Governing Body or of the council of the City and Guilds Institute; the chairman of the Technical Education Board, and two members selected by each of the three constituent bodies, viz., the Technical Education Board, the Central Governing Body, and the council of the City and Guilds of London Institute. All conditions of grants made by one body were communicated to the London Polytechnic Council, and through this Council to the other contributory body. The constitution of this Council afforded some security as to uniformity of policy, and no doubt formed an obstacle to competition of the more serious kind. As the Act of 1903 made the Council the local education authority, and empowered it to promote the co-ordination of all forms of education, the London

Polytechnic Council dissolved on the 29th April, 1904. In the minutes of the meeting held on that date is a report which gives a sketch of the constitution and history of the London Polytechnic Council and of the principal features of its work during the ten years of its existence, including its representations made to Lord Chancellor Herschell for the purposes of securing the recognition of polytechnic classes in connection with the reconstruction of the University of London. At this meeting a letter was received from the clerk of the Council to the effect that the Council would "be pleased to nominate some of its members to form part of the London Polytechnic Council in order that the relations which have hitherto existed may be maintained." On the 25th October, 1904, however, the Central Governing Body received from the London County Council a letter recommending that the London Polytechnic Council should cease to exist as a separate committee with its own secretariat and should be replaced by a conference of four representatives of the Council and four representatives of the Central Governing Body. This conference was appointed and met on the 16th December, 1904, and again on the 6th July, 1905, after which there appear to have been no further meetings. An important service to education was also rendered by the National Association for the Promotion of Technical and Secondary Education, which did much to stimulate public opinion and to focus it on attainable objects.

2. Among other organisations are the Royal Society of Arts and the London Chamber of Commerce. The activities of these two bodies have, so far as higher education is concerned, been mainly directed to the encouragement of the study of commercial subjects such as bookkeeping, shorthand, typewriting, and languages by holding examinations and granting certificates to successful candidates. These examinations have furnished an incentive to students to persevere in their studies, and have thus tended to promote regular attendance in the classes. The certificates awarded by these two bodies are appreciated by the students and are of value to them in obtaining employment or promotion. The National Union of Teachers has also established a system of examinations and certificates for evening school students. A large number of science and art classes were also conducted by voluntary committees, and some of these, like the building construction classes, which the Busbridges (father, son and brothers) used to teach, did a very great deal to promote technical education in the building trades.

3. During the year 1908-9 a conference of officers and teachers spent a great deal of time considering evening school problems, and made a valuable report to the Education Committee.

V.—CHARACTER OF THE EDUCATION.

The first of May, 1904, the day appointed for the Act of 1903 to come into operation, marks the beginning of a new period.

Unity of administration is probably the first characteristic of this period which will strike an observer. It has been seen in the earlier sections of this report how two government departments—the Department of Science and Art and the Education Department—shared the central administration of technical and evening school education. The local authority was divided between the Technical Education Board and the School Board. In 1900 the two State departments were united in one central department—the Board of Education. The Education Acts 1902-3 made the London County Council alone the local education authority for London. The Commission "to promote the general co-ordination of all forms of education" endowed the Council with powers far beyond those hitherto exercised by itself (through the Technical Education Board) or by its predecessor, the London School Board.

Unity of
administra-
tion.

1. The establishment of a system of technical education may, in the main, proceed along one or other of two general lines of action. It may, as is usual in new countries or in countries whose industrial system has been arrested, seek to foster, or to ally itself with, industrial and commercial enterprise, advising the industry, providing technical information for those who can immediately turn it to profit; or it may, as is common in countries with a highly developed industrial system, be satisfied with teaching wage-earning or salaried students the principles (and their application) which underlie industrial and commercial processes. The scientific stations and brewing schools established in Germany with the object of developing the brewing industry are interesting examples of the direct method. Scientific stations were established, notably a great one at Munich, to which "the technical problems which confronted the practical brewer could be referred, and where these problems were solved."* The work of the Department of Agriculture and Technical Instruction for Ireland in its expert aid to agriculture and rural industries, the research carried on at the National Physical Laboratory at Teddington on behalf of navigation of air and sea, the work of the experimental mine at Birmingham University, and of chemical research upon commercial products at the Imperial Institute may be mentioned as illustrations of the direct policy in these islands. In the main, however, the technical education is in England (and in London) provided by the schools under local education authorities, and has been confined to instruction of students—some employers, mostly the employed. Aid was to the individual: whether he transformed the aid into assistance to an industry depended on the student and his opportunities, and not on the technical school. At the same time, however, it must be remembered that outside the schools, a great work of direct technical education is carried on by means of exhibitions, congresses, trade journals and advisory bodies of all kinds.

Two
possible
lines of
develop-
ment for
technical
education.

* "Education and Empire" (R. B. Haldane), p. 9.

The line
taken in
England.

It has been seen at the beginning of this report that technical education in England originated in public concern as to industrial competition, and it might, on this ground, have been expected that technical education would, in the main, have followed the direct policy. It cannot, however, be said that the direct policy was deliberately abandoned, or that the indirect policy was deliberately chosen as best in the public interest. The movement was headed not by manufacturers and merchants, but by educational reformers; a highly developed and complex industrial and commercial system had been built up by the energy and intelligence of individual as distinct from national effort, and only a catastrophe could have prepared the way for any great sudden change. In spite of the work of the Royal Commission on technical education it could hardly be said that a national policy was thought out on a scientific plan. There was a flood of information as to what was being done elsewhere; public feeling had to find relief; some money was forthcoming; and local education authorities took up the work, frequently with enthusiasm, and often, as was necessarily the case, under indifferent advice. Buildings were erected, students came (whether the right kind or not did not matter) and teachers, no doubt the best that local education authorities could find, began work. And in spite of much wastefulness of money and of much wide-spread and ill-advised, if not ignorant, teaching on technical subjects (*e.g.*, agriculture), a system of schools has grown up which has done an enormous amount of useful work. The schools have taken a set on the indirect lines; but their teaching seeks after and is gradually gaining the confidence of industry and commerce to-day. All institutions value the co-operation of trade, industry and commerce, and a good many actively seek for it. All now understand that technical instruction cannot supersede, and that it can only supplement, the factory, the workshop or the counting-house; and, as a rule, details of buildings, equipment and teaching have in recent years been based on this principle.

Close
relation
between
technical
institutions
and
industries.

2. There are to-day in London few institutions of importance which could not show that in original research, in technical advice, in offering or criticising designs, or in undertaking tests, they have not been of much direct assistance to some local trade or industry. Conspicuous instances among "aided" institutions are the Northampton Polytechnic in Clerkenwell in its relation to the optical industries, and the Leathersellers' College in Bermondsey in its relation to tanning; and among institutions maintained by the Council are the School of Photo-Engraving and Lithography and the Central School of Arts and Crafts. A few examples will serve as illustrations—

(i.) At the Leathersellers' College during 1911 a thorough investigation was made of the part played by non-tanning matters contained in tanning materials; the published results have been received with a good deal of interest, and there is no-doubt that they will have an important bearing on tanning practice. A research on the relation of anthrax to skins has been completed and the results published. A process has been suggested which seems likely to be an effective safeguard against the infection conveyed by imported skins, and several minor precautions have also been suggested which may minimise the risk in handling skins. An important investigation into the changes taking place during the process of liming skins prior to tanning is being undertaken; the co-operation of twelve large tanners in various part of the county has been secured, and the work will be carried out partly at the institute and partly on the premises of these firms.

(ii.) Among the work done at the L.C.C. School of Photo-Engraving and Lithography in Bolt-court which has had a direct influence on general practice in photo-engraving, is chiefly that in connection with the operations of the three-colour process. The school was the first in England to use the modern means of colour sensitising dryplates, and the methods taught at the school of using bathed dryplates have led to the manufacture and increasing use of such plates. Investigations into the theory and performance of colour filters have led to the general adoption of filters, having the absorptions which this school stated to be best. The school has published tests of every colour sensitive plate so far placed on the market, and has done much work on the standard specifications of three-colour inks. Suggestions and researches on the permeability of lenses to ultra-violet light have induced lens manufacturers to place lenses on the market for process work. The school has also published comparisons of light sources for process work, open and enclosed arcs, search light and mercury vapour lamps; and claims to have discovered the cause of Chinese white photographing too dark, and to have suggested the remedy which is now universally adopted.

The relation of the school to the special industries with which it is concerned has been emphasised by the fact that the principal recently resigned to take up an engagement in an important industrial firm.

(iii.) The L.C.C. Paddington Technical Institute has also given direct service, of which the following may be regarded as examples—

(a) The A Company supplied two four-cylinder engines to the institute to be tested, and important and valuable information was returned to the company as to the efficiency at various speeds and loads, and in particular the speeds were determined at which the maximum horse-power was obtainable. The tests were carried out mainly as class work under the direction of the head of the department.

(b) A series of special cement tests, mechanical and chemical, was carried out on behalf of a firm of consulting engineers.

(c) A prominent firm of patent flooring manufacturers have submitted samples of their materials for physical and chemical tests. Defects in these were found and corrected, resulting in an improved method of manufacture and erection.

(d) The B Company supplied materials (quartz glass) for investigation in mercury arcs. As a result of the investigation a new form of mercury arc lamp, designed in the institute for lighting and water purification by ultra-violet rays, has been adopted and is being manufactured by the firm. A report of the research work in oscillating mercury arcs by the head of the department is in proof for the "Philosophical Magazine."

(e) Another company supplied materials for and interested themselves in technical research work now being carried out at the institute on the relation between purity and rate of deposit in electrolytic work.

(iv.) As the result of researches at the Northampton Polytechnic optical instruments have been made in England and, in spite of the American tariff, have been sold in America with American makers' names on them.

(v.) At the metal casting classes of the Sir John Cass Technical Institute, Aldgate, a large number of objects have been successfully cast by the *cire-perdue* process, and the students have had every opportunity of learning the applicability of the methods, adopted with small examples, to larger castings. As an instance of the value of the instruction, one firm of silver casters sent three of their men, including a foreman, to the class, and have since succeeded in applying the methods learnt to the casting of an object which they were unable to reproduce by the methods they had hitherto employed.

(vi.) The annual exhibition of the Central School of Arts and Crafts is visited by a sufficient number of persons engaged in goldsmiths' and silversmiths' work to indicate that the work of the school must have considerable commercial value.

There is room within reasonable limitations and safeguards for much larger developments of this kind. Further, the laboratories and technical libraries of the polytechnics and technical institutes can be of great service to firms who know how to make use of them.

3. In considering the relation of technical education to industrial development, it may be interesting to learn from one closely associated with practical aeronautics what view is held as to the share of scientific training or empirical knowledge in the rapid development of aerial navigation. The secretary of the "Aerial League of the British Empire," a trained engineer, has given me the following answer to my inquiry—

Opinions of
an expert in
aeronautics.

"I think it is correct to say that the system of intelligent 'trial and error' has been chiefly responsible for the rapid development of practical aeronautics. It is also true, to a great extent, that much the same principle has been the basis of the purely scientific treatment of the subject. In aerial navigation, into which so many contributory factors enter, as compared with other branches of applied science, theoretical considerations, deductions and formulæ are largely dependent and built up upon experimental work, not necessarily with full scale apparatus, but with reduced models in the laboratory.

"With regard to your question as to how far one should proceed to assign due proportion in the development to either of these, if I understand you to refer to the *future* development, I feel that, with regard to aeronautics, it should rest neither with the rule of thumb constructor nor with theorist and mathematician, but must depend upon the closest possible co-operation of the two branches, in order to produce designers, works managers, etc., of really practical and creative ability.

"Briefly, I would like to see produced a class of man, trained in general engineering subjects and practice, but who have acquired in addition a knowledge of practical aeronautical construction gained by actually building and testing full-size motors and machines and who are conversant with all recent advances in the scientific investigation of the subject.

"To train such men I would like to see established a practical school of aerotechnics and a thoroughly equipped laboratory provided, where they may attend classes and with their own hands conduct experiments in the numerous contributory subjects (as, for instance, gyroscopic action, skin friction, effects of temperature and varying conditions of atmosphere on metals and materials, and the like) which bear directly upon the construction and use of aircraft.

"Such men are wanted to-day, and will be increasingly sought after in the new industry, and educational facilities should be extended to this class rather than to the type of men known as 'mechanics.' Men of the latter class working under the direction of the former, do not necessarily require *specialised* knowledge to enable them to follow instructions, carry out constructional work or actual flights upon the completed apparatus.

"The Advisory Committee for Aeronautics is doing good work (at the National Physical Laboratory), but I feel that the benefits of this work might be enormously increased if it could be reproduced in another laboratory or otherwise made available, by practical demonstration rather than in printed statistical form, for the benefit of students.

"Some 85 students (graduates for the most part of various French engineering schools) attended the full-time courses of the school of advanced aeronautics in Paris last session. We have no institution equipped for such work, no laboratory and no place where a student can obtain practical full-scale constructional experience, apart from expensive premium apprenticeship."

VA.—CHARACTER OF THE EDUCATION—*continued*.

The education of students seeking their own improvement, rather than the enlightenment and guidance of industry and commerce, has formed the main work of technical institutions—in the day in professional schools, the education of all who satisfied an examination test (and of some who didn't) and could pay the fees; in the evening in trade classes, the education of students engaged in the trade concerned.

Nature of
the
education
provided.

(1) Advanced technical departments.

1. In most of the older universities, in all the newer ones, and in all the more important technical institutions of the United Kingdom, great technical departments have been established within the last twenty years, mainly by the enterprise of senates and governing bodies, to meet a public demand; often supported by private donations and always fashioned and moulded by public criticism and by the permanent body of educational experience which has emerged from the efforts, profitable and wasteful alike, of the technical education movement. The principal object of these departments is to do for industry what the older universities and colleges have done for law, medicine, theology, politics and statesmanship. In London, work of this kind is done in the Imperial College of Science and Technology; in the university colleges (University, King's, East London); in Finsbury Technical College; in the day departments of the polytechnics, and in the Leathersellers' College. There is considerable variety, both in aim and quality of work; but all alike seek to train something more than intelligent and skilled workmen.

(2) Classes established in close co-operation with employers.

2. Some technical institutions have succeeded in establishing co-operation between firms of employers, their apprentices and learners, and the technical institutions. A few examples will be instructive—

(i.) Before the South-Western Railway works were removed from Nine Elms to Eastleigh, Battersea Polytechnic conducted part-time day classes for young engineers in the works.

(ii.) The Borough Polytechnic receives an annual contribution from the National Association of Master Bakers and Confectioners, the payments being of the nature of grants up to a maximum of £300 a year to meet the net loss on the maintenance of the bakery school. The association afforded material help also in the establishment and equipment of the school, and still provides, each year, a large part of the materials used. The London Master Bakers' Protection Society also contributes £50 per annum.

(iii.) The Tanners' Federation, in co-operation with the Leathersellers' Company, offer four scholarships of £75 each, tenable at day courses at the Leathersellers' College, to the sons of foremen and workmen engaged in the trade.

(iv.) Apprentices from the Midland Railway Company attend the Northern Polytechnic on two mornings a week.

(v.) The Gas Light and Coke Company send their apprentice gas-fitters to the Westminster Technical Institute on two half-days a week.

(vi.) Successful candidates at the Royal Arsenal examination for the selection of suitable "trade lads" are required by the Arsenal authorities to undergo a four years' course of training, partly in the Woolwich Polytechnic and partly in the Arsenal workshops. Under this arrangement, about 100 lads attend the Woolwich Polytechnic for day and evening instruction, and about 150 for evening instruction only.

(vii.) Arrangements have recently been completed for the technical education of the apprentices in the Council's tramway repairing depôts, partly at the depôt within the Council's time and partly at neighbouring technical institutions. For the boys (unskilled) in the service of other departments of the Council, classes are provided, by special arrangement on two afternoons per week at the City of London College.

(viii.) The Admiralty have an arrangement with the Borough Polytechnic for teaching their messenger boys.

(ix.) Recruits to the Metropolitan police force are compelled to attend classes during the first few months of their career.

(x.) The London Association of Master Decorators are engaged on a scheme of training for apprentices in their trade.

(xi.) During the sittings of the Royal Commission on the Poor Law, and after the reports (majority and minority) were published, there was much searching of the public conscience as to "blind-alley" occupations. Some of the Government departments—more especially the Post Office—were severely criticised by Mr. Cyril Jackson in his report to the Commission on Boy Labour. In 1910–11, arrangements were made by the Council for conducting (at the War Office) classes for boy messengers in the Government service immediately after the boys' official hours. The initiative came from the Army Council, whose inquiry had shown that the system hitherto followed of allowing the boys to join the classes in the neighbourhood of their homes had not secured the regularity of attendance or closeness of application necessary to attain satisfactory results. The Council charged the usual evening school fee in such cases, viz., one shilling. The classes are conducted in rooms at the War Office. The majority of the boys are employed in the War Office; the remainder come from the Board of Education, the Local Government Board, the Board of Trade, the Stationery Office, the Home Office, and the Office of Works. There are also similar classes at the Patent Office, the Public Trustee's Office, and at Somerset House.

(xii.) The session 1911–12 saw a large development in this direction. For several years past a considerable number of Post Office boys had been taught in the Council's evening classes. But attendance on the part of the boys was optional. The Secretary of the General Post Office sought the Council's assistance in the provision of compulsory classes on Post Office premises and in evening schools. A minimum attendance of four hours per week was to be compulsory. A progressive two years' course in general subjects, such as English and arithmetic, geography and history, was desired. It was proposed that at the end of two years'

service the boys should be examined by the Civil Service Commissioners in the subjects taught in the classes, with a view to the absorption of the great majority of the boy messengers into the permanent employment of the Post Office. The Post Office authorities provided accommodation at nine of their offices and also paid the usual fee of 1s. for each boy, whether attending classes at an evening school or in a post office. The Education Committee fell in with the Post Office scheme, subject to the condition that the hours of labour, of physical exercises, and of educational classes for the boys should not exceed 54 per week. The Post Office consented. Some 3,000 boys are in attendance at 27 centres—18 evening schools and 9 post offices. At first the teaching staff was of a temporary character, but the Council later on appointed an organising head master and a permanent staff. A large proportion of the classes are held in the daytime. The arrangement is quite successful: the regularity of attendance will be very high, and the possibility of securing permanent employment in the Post Office as the result of attendance at these classes by the boys makes the scheme much more successful than that of optional classes.

(xiii.) What is known as the "sandwich" system, part of a course of instruction in the school or college and part in the workshops of a firm, has been most fully developed at the Northampton Polytechnic (see para. 2, pages 39 and 40).

3. As a rule, the students are seeking instruction which will increase their occupation efficiency. A return of the occupations of students attending evening classes in aided and maintained institutions during the session 1908-9 is found in Appendix B (pages 105-106). The number of students and the variety of occupations may be regarded as some indication of the variety of subjects and the extent of the classes.

(3) Classes related to different types of occupation

4. In some technical institutions much work of a non-industrial character (*e.g.*, instruction of all kinds to teachers seeking to add to their qualifications) was undertaken. The growing completeness of the educational system during the last decade, the better general education of the teacher, the improved work of the training colleges, and newer ideals as to bringing teachers into close relationship with the universities, have dispensed with the need for much of the instruction to teachers at technical institutions; and some of the institutions must seek new and more technical fields for their energy, or else close departments of their work.

(4) Classes not related to any specific industry.

5. In recent years, two problems of much importance have arisen in connection with the character and organisation of the instruction—(i.) the general character of the instruction; and (ii.) liberty of choice as to subjects and number of classes on the part of the students.

(i.) As to the first, there is no cessation of the struggle between the ideals of technical and general education. "On the one hand, as a workman, whether with head or hand, the student must obtain the technical qualifications required to maintain him in independence or to advance him in life. On the other hand, as a member of a self-governing nation, he must acquire the civic qualities which enable him to co-operate with his fellows, and to judge wisely on matters which concern not only himself but the whole country to which he belongs."*

Two important questions for determination. (i.) How far should the instruction be technical, how far general?

The staple industries of England were once limited to wood and wool. The introduction of 80,000 Huguenot refugees, with their renowned skill of hand, and the consequent expansion of trade, with imported materials, gave new strength to, if they did not start, the waves of faith in manual skill, which still break on our educational shores.

Adam Smith taught us that manual skill was the chief advantage derived from subdivision of labour. Machinery, however, coupled with the enormous motive power in the natural resources of this country, transferred industrial power from manual skill to capital. Machinery, while demanding increased skill and intelligence from the relatively few, has lowered the standards of the relatively many. And so the more narrow and restricted the workers' experience in factory and shop and office, the greater the demand that technical schools should supplement and broaden with theory in the classroom and practice in laboratory and workshop. But the great aggregations of labour, their sharing of industrial power, and their profound influence on the future of society, add new importance to the need for general education. Further, the general advance in education, the leisure wrung from toil, with the increased opportunities it offers, and the growing interest of the working classes in the unsolved problems of themselves and their relation to others, demand a wider education than that for occupation efficiency alone. In this connection it is difficult to avoid mentioning the unique work of the Working Men's College (formerly in Great Ormond-street, now in Crowndale-road), founded by F. D. Maurice and his friends, with the idea of broadening adult education, and converting it from a system of instruction into a way of life. The college maintains the ideals of its founders with great success (see pages 75-76).

It is becoming clearer that technical and general education are not mutually exclusive but complementary, and that the best education for the citizen will be found in a well-balanced proportion of education for livelihood and education for life.

(ii.) The second problem—the liberty of choice as to subjects and number of classes on the part of the students—has been much discussed. But some experience has also been gained.

(ii) How far should students have liberty in choice of subjects and classes?

The principles seem plain enough. A few examples will make this clear—

(a) A young engineer who has been educated at an engineering college and possesses a good knowledge of mathematics, mechanics and machine designs finds himself unequal to the task

* Oxford and Working Class Education (Oxford Clarendon Press, 1908).

of expressing his views clearly in the mother tongue. Obviously he should not be required to take a class in mathematics or in mechanics as a condition of his being allowed to join a class in English.

(b) A well-educated youth in the office of a firm of merchants is informed that he is to go out to a branch office in the East, and he seeks, say, Chinese only. To this subject he should obviously be allowed to give his undivided attention.

(c) Adults of some education who seek, in their limited leisure, to join a course of lectures on English literature, on history or economics or commercial law, should clearly be encouraged to do so without restriction.

(d) There are hundreds of boys and young men of scanty education who do not know that some elementary mathematics is an essential preliminary to a course in elementary mechanics; and there are thousands of imperfectly educated boys and girls who want shorthand only, or shorthand and typewriting, and do not understand—from that point of view—how much their spelling and English composition is in need of repair. Such students, in their own interests, must be pressed to take that course of study which the experience of the schools has shown to be necessary.

But the cases which present themselves for the decision of the responsible head are often far from being so simple as those mentioned. Indeed, they form on occasion quite difficult issues for a conscientious adviser.

It must be remembered that attendance at evening institutions is voluntary; that there are many attractive competitors for the students' interest and attention; that the hundreds of evening institutions have acquired certain habits and attitudes; that a student refused at one institution may be received at another; and that the problem of falling attendance must be a constant anxiety to the staff. It will, therefore, be readily understood that it would take some time for an important new principle which would, one way or the other, profoundly affect attendance, to obtain general acceptance with students and staff, and that in the absence of a general requirement only courageous principals or responsible teachers would try experiments. Experiments have, however, been tried, and there is no doubt as to their success. The principle has in the last two years secured many adherents; the more cautious heads are following the lead of the more courageous.

Organised
courses.

The Education Committee are of opinion that the Council should aim at a general introduction of organised courses throughout the evening school system, but they do not think the time has arrived when it would be in the interests of education to insist even in the case of the youngest students that as a condition of enrolment they should take up a selected course of instruction for two or three nights a week. Responsible teachers of ordinary evening schools have, however, been instructed to use all possible endeavours to persuade students to take such courses, and it is to be understood that success in arranging such courses will be regarded as a testimony to efficient organisation. In the case of the centres, however, the Council has agreed that courses covering three nights a week should be made compulsory on all students under 18 years of age, except where the responsible masters consider that circumstances justify exemption.

VI.—CONSULTATIVE COMMITTEES.

Relation-
ship of
evening
institutions
to employ-
ers.

1. All educational institutions are endeavouring to establish closer relations with employers. The Appointments Board at Cambridge has shown the universities how to find posts for their graduates; and the Board of Trade are engaged in an experiment of endeavouring to place children on leaving the elementary schools.

The problem of relationship to employers is, however, a different one for evening institutions. As a rule, the evening student is already in employment, and is seeking education to increase his occupation-efficiency. The evening institutions seek the aid of employers (i.) to encourage students to join and to facilitate the attendance of those who do; and (ii.) to offer practical criticism on the character of the instruction.

2. Examples of co-operation have been mentioned in a previous section: co-operation with the Post Office, the War Office and other Government departments, as well as with the tramways department and other of the Council's services.

In both respects London gets less assistance from the leaders of industry than cities like Glasgow or Manchester or Birmingham. For example, in Glasgow, the engineering director of the Fairfield Shipbuilding and Engineering Company, and the engineering director of John Brown and Co., Clydebank Shipbuilding and Engineering Works, are members of the examining committee of the engineering department of the Glasgow and West of Scotland Technical College. It is the practice of these leaders in their profession to look in great detail through worked papers and designs, and to give the engineering department of the college the benefit of their criticism. Employers, parents and students must have the utmost confidence in instruction given under such guidance. The fact that London has in the past received less assistance of this kind is due, not so much to disinclination on the part of the leaders of industry and commerce, as to the special peculiarities of London. A moment's consideration of the area involved, and of the distribution of schools, factories or workshops, residences of students and residences of employers will show the inherent difficulties of the problem. Something, however, towards strengthening the relationship between schools and workshops has been accomplished by general organisation, and much by individual principals or responsible masters.

3. Since May, 1911, the Imperial College of Science and Technology has made a distinct advance in this direction. An Advisory Board has been constituted for the Royal School of Mines. The Board consists of 10 members, eight nominated by the Institution of Mining and Metallurgy and one each by the Iron and Steel Institute and the Institution of Mining Engineers—the actual selection remaining with the governing body. The governing body is considering the formation of advisory boards for (a) Chemical Technology, and (b) Economic Botany. The function of such boards may be briefly as under—

To report upon such matters as may from time to time be referred by the governing body and independently to place before the governing body any matters of importance in relation to the work falling within their purview in order to secure that the courses of study, etc., are adequate to industrial needs and that a definite organic connection is formed between the profession and the industry.

4. In 1907 the Council, in order to secure the active co-operation and sympathy of the trade in connection with bookbinding classes in London, decided to form a consultative committee of representatives of the trade from associations both of employers and of workmen and from experts in the craft unconnected with any organisation.

Formation of consultative committees.
(1) Book-binding.

The Committee consisted of three representatives of master bookbinders, three representatives of associations of employees, and three representatives of the Council. They met on a large number of occasions, Mr. Emery Walker being the chairman. They also visited all the bookbinding classes in the county, and they presented a valuable report to the Education Committee. The establishment of a day trade school for printing and bookbinding was the result of one of their recommendations. The school was opened in the Central School of Arts and Crafts in September, 1909. The same consultative committee also recommended the formation of a letterpress printing committee, and this suggestion was adopted by the Council in 1908. Mr. Emery Walker was also elected chairman of this committee. Later on the two committees were amalgamated into the Consultative Committee on Book Production (Printing, Bookbinding, etc.). The committee, under the same chairmanship, usually meet at one of the schools where instruction in some book production trade is being given; they visit the classes and examine and criticise the work. The committee have on more than one occasion expressed the view that such day trade schools (boys) as that established for printing and bookbinding at the Central School of Arts and Crafts should, as a rule, form the entrance to the trades.

5. A similar consultative committee on goldsmiths', silversmiths', jewellers' and allied trades was formed in 1908, consisting of four representatives of master jewellers and silversmiths, four representatives of the employees' associations and four representatives of the Council. Mr. H. Wilson is the chairman. The committee have visited all the classes in the trades in which they are interested and have presented several most interesting and valuable reports to the Education Committee. On the advice of this committee the Council opened classes in both diamond mounting and diamond setting at the Central School of Arts and Crafts, and was the means of a class in diamond mounting only being established at the Sir John Cass Technical Institute.

(2) Goldsmiths, silversmiths, etc.

6. Consultative committees have also been formed (i.) on the furnishing trades (chairman, Mr. F. W. Troup, F.R.I.B.A.), and (ii.) on the tailoring trades (chairman, Professor Selwyn Image).

(3) Furnishing and tailoring trades.

The influence of such committees on the character of the teaching, and their usefulness in establishing good relations between the various classes and the trades concerned, could hardly be overstated. The Council is anxious to extend the advantages to other industrial and commercial subjects.

7. In connection with the trade schools for boys and girls, advisory committees, generally of a more local and less formal character, have also been established. It was found that the business-people sought after were unable to give up time to regularly summoned Committee meetings, and so panels of experts willing to be consulted by the Council's organisers, informally at their own time and at their business premises, were formed.

(4) Advisory committees for trade schools.

Through such informal consultation and by occasional visits to the schools, the members of these advisory committees have given much valuable advice and help as to the qualification and selection of trade teachers, as to trade methods to be taught in the schools, as to suitable equipment, and as to the placing of students. It is only with assistance of this kind that the trade schools can be conducted on such lines as will secure to the students at the close of their training immediate employment under existing trade conditions.

Much remains to be done. Teachers and employers have a great deal to learn from each other, to the advantage of education and of industry and commerce, as well as for the good of the student, who forms the connecting link. The nearness of things to each other in Glasgow and Birmingham and Manchester, as well as the corporate spirit of these cities, make their problem much easier than ours. But the needs of London's technical and commercial schools are none the less; an immense effort on the part of governing bodies would almost certainly meet with success.

Conclusions.

University
Extension.
(Memoran-
dum by the
late Dr.
Roberts.)
Growth of
the univer-
sity exten-
sion move-
ment in
London.

VII.—UNIVERSITY EXTENSION AND THE WORKERS' EDUCATIONAL ASSOCIATION.

1. *University Extension.* (Memorandum contributed by the late Dr. R. D. Roberts, Registrar, University Extension Board).

In 1904 the university extension movement had been in existence in the metropolis for 28 years. Down to 1902 it had been carried on by a voluntary association—the London Society for the Extension of University Teaching—but after the conversion of the University of London into a teaching university by the University of London Act, 1898, the work was transferred to the university by the London Society, which then by resolution dissolved itself. Since 1902 the work has been carried on by the university as a part of its regular educational machinery. In the session 1904–5, 182 courses of lectures were given in different parts of the London area, for which the number of entries was 15,596. For some years previously university extension courses specially designed to meet the needs of pupil teachers had been arranged, and in that session 27 terminal courses were arranged at nine centres for pupil teachers at the request of the London County Council. In the following session the County Council decided to make different arrangements with regard to the education of pupil teachers, and the special courses for pupil teachers were abandoned. In spite, however, of that withdrawal of a great block of work the movement has continued to progress, and during the last two sessions the number of terminal courses has been in the one session 192, and in the other 197, while the number of entries has increased to over 16,000. Some of these courses have been delivered in polytechnics and similar institutions, while others have been organised by voluntary committees who have secured some suitable hall in the neighbourhood for the delivery of the lectures. The audiences are made up of persons drawn from all sections of society, but the bulk are persons of the middle classes, many of whom are engaged in some bread-winning occupation and who find in these lectures opportunities of culture which exactly meet their needs. As the system on which this work is carried on includes not only the delivery of the lectures, but the conducting of a conversational class in connection with the lectures and the affording of opportunities for students to do home work for the lecturer, a certain proportion of those attending the lectures carry on very effective and thorough work. From 10 to 12 per cent. of the students do regular paper work for the lecturer, and the majority of these take the final examination at the conclusion of the course.

Character
of the
instruction.

The question naturally arises, what place does this system fill in the educational machinery of the metropolis? It should be noted in the first place that by far the larger number of courses are in subjects falling under the head of the humanities, that is, in literature, history, economics, art and similar subjects. The polytechnics make such ample provision for science and technical subjects that there is practically no demand for scientific courses under the university extension system, indeed, the absence of laboratory equipment rendered the science work under the university extension system always less satisfactory than the humanistic work.

Diploma
courses.

The university has now given definiteness to this whole work by the establishment of diplomas in literature, in history, and in economics and social science awarded on the result of an approved four years' course of study tested at the close by a searching examination. The University Extension Board state that the scheme for each diploma has been designed so as to enable a student who has completed the course of work to become an independent worker in the subject. The first three years' course in each case is general, while the fourth year's course is more specialised. Many of the teachers of the Council who are attending the lectures on literature under Professor Gollancz at King's College are working for the diploma in literature, Professor Gollancz's lectures being recognised by the university for the purpose of the diploma. The following quotation from the statement issued by the University Extension Board sets out the purpose of the diploma—

“Students who are able to give their whole time to study in a school of the university for three or four years have the choice of a number of schemes of study definitely arranged with suitable examinations each leading up to a degree, so that there is provided at the same time an incentive and definite guidance. For the evening student who is able to pursue the exacting course of study for a degree provision is also now made at various institutions in London. There are, however, many thousands of students attending university extension lectures in London who are not working for degrees, the majority of whom are evening students engaged during the day in various bread-winning occupations, to whom some definite object for which to work and definite guidance as to the course of study to be pursued would be a distinct help. An urgent need, therefore, exists for the provision of definite schemes of work with some goal to be reached adapted to the wants of students who are not intending to graduate, but who, nevertheless, having intellectual interests, desire to pursue the study of some subject to a high level. This is what the diploma scheme is intended to do. The problem of how best to encourage those who, having left school, are entering upon the ordinary occupations of life, to continue their education is acknowledged to be one of great urgency, and it is hoped that the establishment of the diploma scheme by the university will contribute something to the solution of the problem.”

The place that the university extension system with its diplomas seems clearly fitted to take is to provide, for students who are not intending to graduate, systematic courses of work in one department of study which will fit them if they so desire to carry on independent work.

R. D. ROBERTS.

2. The Workers' Educational Association.

(Memorandum contributed by Mr. A. E. Mansbridge.)

Within the last three years the university has developed special tutorial classes, in co-operation with the Workers' Educational Association, with the view of meeting the needs of working people. These tutorial classes differ from the ordinary university extension courses only in the fact that the numbers are limited to not more than 30, so that the students come into more personal relations with the teacher than is possible where the audience is large. These tutorial classes in economics and history are arranged so as to provide an approved course of study extending over three years. The following facts with regard to this development of the university extension movement will be interesting.

The Workers' Educational Association has steadily advanced its work during the year. Its main purpose is to act as a missionary organisation, stimulating the demand for education amongst the workpeople of London. Naturally enough, in the early stages of its work, it finds it necessary to construct classes and manage them, more particularly such classes as need considerable elasticity of arrangement in the experimental stages; but it is desirous that the University of London and the London County Council shall undertake as much of the work as they will.

The association took an important step when it asked the University of London to appoint a joint committee seven members of which should be nominated by the association as representatives of labour, and seven by the university. To this body it handed over the conduct of tutorial classes and of the lectures for London workpeople which it had organised annually. In connection with this committee there are this year 22 classes, of which the following 12 classes are in the Council's area, and are aided by it to the extent of £300—

Battersea	Sociology.
Camberwell... ..	Economics.
Clerkenwell... ..	Economics.
Hanover-square	English literature.
Kentish-town	The growth of the English people.
Marylebone... ..	Sociology.
Morley College, 1... ..	Economic history.
Morley College, 2... ..	Economics.
Poplar	Economic history.
Printers' class	Economic history.
Working Men's College, 1	Economic history.
Working Men's College, 2	Political institutions and political thought.

The association with the help and approval of the Council has itself organised a number of provisional classes, several of which present all the characteristics of university tutorial classes, and will, it is hoped, become such, while others, the association hopes, may become classes of the Council.

The association will strive in every possible way to increase the quality and quantity of the attendance at the Council's evening schools.

Obviously it is only at the start of its work in London.

A. E. MANSBRIDGE.

3. The Council's relation to the movement.

In connection with University Extension work the Council, for a number of years, has assisted the movement by making a grant of £50 to each of a number of courses of university extension lectures not exceeding 10 (*i.e.*, a sum of £500), held at various institutions within the county. In 1910, however, it was recognised that the necessity for pioneer work, with which the university extension movement was primarily concerned, was becoming less urgent in consequence of the more systematic organisation of educational work at the various institutions concerned, and it was thought that part of the Council's grant could be more usefully employed in connection with the work of the Joint Committee for the Promotion of the Higher Education of Working People, organised by the University of London. The Council accordingly on 14th June, 1910, in dealing with the question of its grant for the session 1910-11, decided to devote a sum of £350 to the ordinary university extension lectures, and allocated the remaining £150 in aid of tutorial classes for working people. The Council at the same time was of opinion that it would conduce to the better organisation of the work if its grant was paid directly to the Senate of the University instead of to the individual institutions, and that the University Extension Board should be responsible for all the arrangements for the lectures, etc., and the senate was asked to furnish annually to the Council full particulars of the work being done. The Council's action in re-apportioning its grant appears to have been justified, as in December, 1910, a special report on the tutorial classes held in connection with the Workers' Educational Association was made by the Inspectors of the Board of Education, who found much to commend in the work which was being carried out, and stated that the tutorial classes were fulfilling a very useful purpose. On the publication of this report an application for increased assistance from the Council was received from the association in February, 1911, and after a careful investigation of the details of the work of the association had been made, the Council, on 11th July, 1911, decided to double that portion of its grant which was to be allocated to the maintenance of tutorial classes, and voted a sum of £650 for the educational year 1911-12, made up of £350 for university extension lectures, and £300 for tutorial classes.

The following is a summary of lectures and classes arranged by the University Extension Board in the County of London in the session 1911-12—

(i.) Sessional courses approved for diplomas in history, literature, and economic and social science, held at certain colleges of the University of London, polytechnics and other educational institutions in various parts of London.

The Workers' Educational Association. (Memorandum by Mr. Mansbridge). Tutorial classes for working people. The Workers' Educational Association.

Tutorial classes aided by the Council.

The Council's grants.

(ii.) Courses of university extension lectures held in Central London and in the suburbs in public buildings and educational institutions by arrangement with local and other authorities on historical, literary and economic subjects of general interest.

(iii.) Tutorial classes for working people in history, literature and economics held at the City of London College, the Hampstead Garden Suburb and Toynbee Hall.

(iv.) Other tutorial classes in similar subjects under the auspices of the Joint Committee for the Promotion of the Higher Education of Working People, and held in various parts of London, chiefly at L.C.C. elementary schools.

VIII.—EXPANSION AND CO-ORDINATION.

Expansion.

Expansion
and co-
ordination
of evening
schools.

There has been a great expansion of work. A few totals will amply show this. Since 1904 new or enlarged buildings account for a capital expenditure of £316,505 on maintained institutions; whilst in respect of aided institutions, building grants during the same period amounted to £75,504, in addition to £114,257 allowed for the purchase of equipment, of which an appreciable proportion was required in respect of new buildings.

The total expenditure incurred by maintained (technical institutes, schools of art, and evening schools) and aided institutions, as well as of technical scholarships, was approximately £375,000 in 1904-5, as against £485,000 in 1910-11. These figures do not include grants given to the University of London, nor to the Imperial College of Science and Technology.

The work thrown on the committees which have planned, thought out and directed this growth may not occupy so much of public attention as that done in other parts of the educational field, but it is none the less of great and permanent value.

New build-
ings and
enlarge-
ments.

(1) New buildings and enlargements are an obvious sign of growth.

(i.) The Goldsmiths' Company (September, 1904) transferred their recreative and technical institute at New-cross to the University of London and a training college for teachers was established therein. The change effected made a South-Eastern technical institute necessary. The Council and the University agreed that the art school should remain permanently in the Goldsmiths' College buildings and that the college should, pending the erection of the institution, carry on the departments of engineering and building. A site has been secured in Lewisham High-road, and the buildings (to cost with site about £80,000), are being planned. Their delay has been due to various proposals and negotiations which it is likely have now finally been disposed of.

(ii.) Extensions to Woolwich Polytechnic in 1903-4 and 1905-6 cost together £25,000, towards which the Council contributed £24,000 in all, and has recently agreed to a further capital grant of £16,000 conditional on certain local effort.

(iii.) The Poplar School of Engineering and Navigation, erected at a cost of £30,000, including cost of site and equipment, was opened in 1905. The evening classes cover every branch of mechanical and electrical engineering.

(iv.) In 1904, the governing body of the City of London College undertook a building extension scheme at a cost of over £30,000, with the object of providing a commercial college for day and evening students intermediate between the day schools and the schools of the university. The trustees of the Mitchell City of London Charity contributed £15,500 towards the cost, the balance being raised by public subscriptions. The principal donors were the Corporation of London and City companies (£1,980), banks and insurance companies (£1,682), the City Parochial Foundation (£1,500), the Rt. Hon. Sir Edward Clarke, K.C. (£1,050), and Messrs. Wernher, Beit and Co. (£1,000). The Council contributed £2,500 in all.

(v.) The growth of the Northern Polytechnic, Holloway, justified two grants for extension of premises, one in 1905-6, and another in 1906-7, amounting in all to £2,100.

(vi.) The Hammersmith School of Arts and Crafts, which serves the western district in London, was, until 1907, conducted in private premises in Brook-green. Expansion required new premises, and these were erected in Lime-grove, at a total cost of £36,000, for site, building and equipment. A distinguishing feature of the school is its teaching of sculpture.

(vii.) The Westminster Technical Institute, established in 1890, was presented to the Council by the Baroness Burdett-Coutts in 1900; and the Westminster School of Art, established in the Royal Architectural Museum, was transferred to the institute premises in 1903, as the Architectural Association required all their available space for a school of architecture. To give increased and improved accommodation, so as to allow for the development of the work in the institute, a new building, costing £23,900 (erection and equipment), was opened in 1908. Since that date the scope and quality of the institute's work has grown with much rapidity.

(viii.) The Borough Polytechnic, which maintains its splendid traditions as a trades school, opened in 1904 the Kell-street extension, which, with equipment and other necessary charges, cost £21,299. The expenditure was met, as to £4,350, by means of loans from the Central Governing Body of the City Parochial Foundation; as to £75, by donations from

friends of the institute, and as to the remainder, by the London County Council. Further new buildings were opened in 1908. The total cost of erection was £14,049, towards which the Council made a grant of £8,352; Mr. Edric Bayley, a governor of the polytechnic, a gift of £5,235; while £125 was contributed by Sir Edwin Durning Lawrence and the late Col. Bevington. Further building proposals have been submitted to the Council.

(ix.) In 1907-8 the Council made a grant of £400 to the Craft School in Stepney-green in aid of the cost of equipping the new premises, and a building grant of £300.

(x.) The Beaufoy Institute (Vauxhall-road, Lambeth), erected at a cost of £12,000 (buildings) and £5,500 (site), in accordance with a scheme of the Charity Commissioners, for the education of young persons of both sexes in trades and handicrafts, was, on the completion of the building, transferred to the London County Council to be administered by them as trustees. The Council spent about £1,000 in equipping the building. The work of the institute includes a day technical school for boys, as well as evening classes for young people and adults of both sexes. The buildings did not absorb the whole of the trust funds. An annual income of £250 remains over for bursaries in connection with the institute.

(xi.) A small addition was made to the Aldenham Institute (St. Pancras) in 1908. The Council contributed a building grant of £200 and an equipment grant of £150 on account of the work carried on in the printing school.

(xii.) The Central School of Arts and Crafts changed its premises and its locality in 1908. The school had been established by the Technical Education Board in Regent-street in 1896, to provide instruction in those branches of design and manipulation which bear on the more artistic trades. The housing of the school soon became quite inadequate, and a new building, costing £121,000 (including site and equipment), was erected by the Council in Holborn at the junction of Southampton-row and Theobald's-road. At the same time the adjoining premises of the London Day Training College were built. The two buildings formed one design and one structure. The design and general character of the buildings are reputed to be more appropriate to their purpose than those of any other educational building in London. The principal, Professor W. R. Lethaby, who was only a part-time officer, found the work of administration too severe a demand on his time, and his resignation was at length followed by the appointment of Mr. F. V. Burridge, of the Liverpool School of Art, as a whole-time principal.

(xiii.) Battersea Polytechnic had capital grants of £3,000 towards extension (1908-9) and of £2,000 in 1909-10. The Drapers' Company gave the polytechnic £6,000 in 1911 to enable the governors to erect a wing for instruction in hygiene.

(xiv.) A small grant of £600 was given to Sir John Cass Technical Institute in 1909-10.

(xv.) Extensions at Northampton Polytechnic were aided by £5,680 in 1907-8 and £3,320 in 1909-10.

Very large equipment grants (£5,600 in 1909-10) were made at the same time; and recently the Council has had under consideration an application from the governors of the polytechnic to provide £35,000 for the erection and equipment of an optical institute on land belonging to the governors.

(xvi.) The reconstruction of the South-Western Polytechnic in 1910, costing £20,000, was assisted by the Council to the extent of £14,000.

(xvii.) The building trades have always claimed a large share of the attention of technical educators. A monotchnic institution in the centre of the building trades in South London was established by the Technical Education Board in Ferndale-road, Brixton, in the spring of 1904. The great success of the school required an extension costing £32,000 (building and equipment), which was completed and formally opened in the autumn of 1909.

(xviii.) It will be remembered that in the early days of the polytechnic movement it was intended to place a polytechnic in Hackney, but that that intention was not carried out; and that later on a technical institute was built and equipped at a cost of £40,000—partly raised by voluntary subscription, partly by a contribution from the Sir John Cass estate, and the remainder (£25,350) from grants by the Council. The institute, at first managed by an independent governing body, was transferred to the Council in 1909. The completion of the institute buildings is now under the consideration of the Council.

(xix.) All who know Regent-street Polytechnic—the polytechnic prototype—with its 10,000 members and students know how, in spite of great ingenuity in use, its premises had become quite unequal to the task imposed on them. The governors in 1907 undertook the collection of funds for new buildings, which cost ultimately nearly £100,000, and their almost immediate success was a marked tribute to the popularity of the institution. One donor, Lord Leith of Fyvie, gave £30,000. The Council gave £20,000 towards building and £15,500 towards equipment, and the Central Governing Body granted a loan of £20,000.

In this connection two other facts deserve mention: the promptitude with which the building was erected and the manner in which the institute was carried on during the session 1910-11, whilst the old buildings were being demolished and a new building was being erected on the old site.

(xx.) The Paddington Technical Institute was established in 1903 at a cost of £15,000 for purchased buildings (originally a higher grade school) and adaptation. The institute was at first slow in developing, but the extension in recent years of manufacturing industries in the neighbourhoods of Willesden-junction, Acton and Hammersmith afforded scope to the institute of which it readily took advantage, and year by year there has been a large increase in the number of students. Internal arrangements improved the art and craft rooms in 1909. In the same year a power house costing £2,300 was opened to supply power and lighting to the building and to serve for testing purposes. Additional premises, including large mechanical and electrical engineering laboratories and drawing offices were opened in 1910. These enlargements cost £9,000 (including equipment).

(xxi.) The School of Photo-Engraving and Lithography had for long been restricted by the adapted but inadequate premises of the old Stationers' School in Bolt-court, Fleet-street. A new and larger building costing £19,000 for building and equipment, and £15,286 for site has just been erected, and the school began work in it in September, 1912.

(xxii.) In spite of many difficulties, the Shoreditch Technical Institute has twice out-grown its premises. The building and equipment of the first enlargement in 1905 cost £5,490; the second, costing £11,300 (including the cost of certain alterations to the main building), was carried out in 1911.

(xxiii.) The work of the Camberwell School of Arts and Crafts has grown to such dimensions that an extension costing £20,000 (for building and equipment) is in course of erection, although the school had been extended in 1904.

(xxiv.) It has been mentioned in Section I. that the North-Western Polytechnic forming part of the Polytechnic Scheme of 1892 had to be postponed for 20 years, owing to a failure to purchase some unexpired leases. The plans of the polytechnic are now in hand, and the Council has promised £31,000 towards erecting a building whose main purpose is to be a school providing technical instruction in the musical instrument making trades. The polytechnic will include a school of art and trade schools for boys and girls.

(xxv.) The greatly improved tram facilities in Wandsworth and the growth of the Brixton School of Building, the Battersea Polytechnic and the Hammersmith Technical Institute have made the problem of the Wandsworth Technical Institute one of some concern.

The following tables give particulars as to the amount spent by the Council on buildings and equipment since 1904—

TABLE I.

Principal building and equipment grants, made during the period 1904-1912, to polytechnics and technical institutions aided by the Council.

			Building grants.	Equipment grants.
			£	£
Battersea Polytechnic	...	...	5,000	11,895
Birkbeck College	...	...	—	3,275
Borough Polytechnic	...	...	15,659	11,120
City of London College	...	...	1,500	1,477
Goldsmiths' College	...	...	—	1,230
Hackney Institute (transferred to the Council on 1-11-09)	...	...	4,945	2,536
Northampton Polytechnic	...	...	9,000	24,430
Northern Polytechnic	...	...	2,100	6,395
Regent-street Polytechnic	...	...	20,000	24,758*
Sir John Cass Technical Institute	...	...	600	5,085
South-Western Polytechnic	...	...	14,800	7,290
Wandsworth Technical Institute	...	...	—	1,200
Woolwich Polytechnic	...	...	16,000	9,960

* Includes in respect of equipment of new buildings, a grant of £15,500 not yet paid in full.

TABLE II.

Amounts spent by the Council on sites, buildings and equipment for purposes of technical education in institutions, other than schools of arts and crafts, under its direct control during the period 1st May, 1904—30th September, 1912—

	Buildings and Equipment.	
	£	
L.C.C. Beaufoy Institute	...	946
L.C.C. Hackney Institute	...	190
L.C.C. Norwood Technical Institute	...	1,641
L.C.C. School of Photo-Engraving*	...	14,264
L.C.C. Paddington Technical Institute	...	19,673
L.C.C. School of Building	...	33,403
L.C.C. School of Engineering and Navigation	...	22,096
L.C.C. Shoreditch Technical Institute	...	19,332
L.C.C. Trade School for Girls, Bloomsbury†	...	5,026
L.C.C. Trade School for Girls, Hammersmith	...	1,346
L.C.C. Westminster Technical Institute	...	24,874

* In addition to £15,286 in respect of the site.

† £1,669 in addition paid for the redemption of a mortgage on the school premises and expenses incidental thereto; such mortgage being in existence on the transfer of the school premises, formerly used by the Royal Female School of Art, to the Council.

(2) An increase in the number of enrolled students is generally looked for as another obvious sign of growth. An examination of the figures shows that this indication is not present, at all events, in the usual form. The facts are—

2. Statistics as to enrolment of students.

Enrolled students.

	1904-5	1910-11
(i.) Polytechnics	32,004*	27,600
(ii.) Technical institutes, etc., aided and maintained	12,500†	15,390
(iii.) Schools of art (not in polytechnics)	4,000†	5,163
(iv.) Centres (science and art and commercial)	25,943	31,814
(v.) Ordinary evening schools	124,662	96,650
	199,109†	176,617

* Including a much larger number of secondary school pupils than in 1910-11. The year 1910-11 also saw a considerable drop in number of students at Regent-street Polytechnic owing to rebuilding.

† Partly estimated.

Although a total increase of enrolled students cannot be claimed, it may be noticed that there is a total increase of 5,500 students in attendance at the higher institutions (i.), (ii.), (iii.), (iv.) Further, there is all over a very considerable increase in the number of hours' attendance per student; in the evening schools (including centres) alone there was an increase from 38 in 1904-5 to 46 in 1910-11.

There has been a large increase in cost of maintenance. The facts are as follows—

	1904.	1910-11.	Gross Cost of maintenance.
	£	£	
(i.) Polytechnics	170,339	204,883	
(ii.) Technical institutes (aided and maintained)	38,614	90,966	
(iii.) Schools of art (aided and maintained)	21,503	33,373	
(iv.) Centres (science and art and commercial)	138,944	140,816	
(v.) Ordinary evening schools (not separated in accounts)			
	£369,400	£470,038	

The cost of teaching staff is by far the largest item in annual maintenance, and any increase of this kind may be fairly attributed to an increase in the quality of the work. Such a view is borne out by the increase in the Board of Education grants—

	1904-5.	1910-11.
	£	£
(i.) Polytechnics	22,566	32,658
(ii.) Technical institutes and schools of art (main- tained)	5,329	17,709
(iii.) Evening schools (including centres)	39,269	42,393
	(5s. 2½d. per head.)	(6s. 7d. per head.)
(iv.) Other aided institutions	4,133	4,677
	£71,297	£97,437

Board of Education grants.

The increased grants from the Board of Education are partly due to grants for new institutions, partly to a widened curriculum and improved equipment, and partly to a higher number of student hours and a higher rate of payment for higher work.

Examina-
tions.

It might be expected that an increase in the number of student hours and an increase in cost of maintenance and of government grants would coincide with an increase in value of work, that could in some way be supported by figures. The only figures available are the results of certain examinations. These are given in Appendix F (pages 112-115). They show that a very large number of students have been successful in the higher examinations, but they do not show an increase in 1910-11 over the number for 1904-5. The explanations offered are, in my opinion, perfectly good.

First it is said that there has been a change in the attitude of London students towards examinations, and that examination successes are no longer sought after with so much eagerness. The totals confirm this view.

Secondly, there has been an important change in the character of the examination successes sought after. Great numbers of teachers at one time used to seek certain science and art certificates. The School Board required these—the “five points”—as a condition precedent to an increase of salary. This condition was abolished by the Council in 1905. Large numbers of teachers now attend the special classes for teachers, which have been organised by the Council; many seek a university diploma, and considerable numbers seek a university degree.

Lastly, there has been a change in the character of the examinations themselves, the standard of success having been considerably raised, and, in the case of the science and art examinations, the discontinuance of day examinations has made the figures not comparable. Not only in examinations, but also, in all respects, there has been a considerable re-arrangement in the ideals of students, and in the work which they undertake.

General
conclusion.

A large increase of students in higher institutions; a large extension of premises and improved equipment; a large increase all over in attendance hours per student; and a large increase in cost of maintenance, of which by far the greater proportion is paid in salaries of instructors; an increased representation of masters and workmen on advisory committees, with a corresponding increase in the interest of employers, and of expert criticism of work done, all support the view that the period 1904-12 has been characterised by great expansion in quantity and quality of work. The fall in numbers of students in ordinary evening schools is compensated by a growth in clubs.

Co-ordination.

Co-ordina-
tion.

1. In an earlier section of this report it has been shown that a local policy of large and strong institutions, acting as centres of influence and gradually attracting within their sphere the miscellaneous classes of an area, was strongly supported by the Technical Education Board. It has also been seen that the evening school system of the London School Board and the system of science and art and technology, aided or maintained by the Technical Education Board, bore no intimate relationship to each other. There was no general plan to provide for the needs of London as a whole; nor was a policy of “give and take” adopted between the two authorities themselves, nor indeed between the institutions and schools within their respective control. Certain facilities offered by the polytechnics and technical institutes and schools of art were also being offered by the evening schools; opposition grew on both sides. Not only was there absence of co-operation between the two systems, but overlapping and rivalry existed. These were the inevitable results of the concurrent activities of two local authorities in circumstances which demanded the rapid extension of technical education and evening schools. In 1899 the Technical Education Board and the London School Board arrived at an agreement to avoid overlapping in certain parts of the work. Before, however, sufficient experience had been gained to give effect to this agreement, the Cockerton judgment held the field.

The position
before 1904.

The Coun-
cil's first
attempts at
co-ordina-
tion in 1905.

2. Soon after the Council became the local education authority, serious attention was directed to the co-ordination of the two systems. Investigations showed that the time was not ripe for any scheme of co-ordination, which would embrace the whole system of evening schools and institutions throughout the county. Such a scheme, it was felt, must be the outcome of experiment and gradual development. Certain tentative proposals for a measure of co-ordination were, however, adopted by the Council in 1905, with the concurrence of the governors of the various polytechnics, and a beginning was made of marking out certain specific spheres of work for the polytechnic, the technical institute, the commercial and science and art centre, and the ordinary evening school. The areas concerned were those of the Battersea, the Borough, the Northern, the South-Western and the Woolwich polytechnics, and of the Paddington Technical Institute. A distinct advance was then made. The results, however, fell short of the expectations of the promoters. The old feeling of rivalry was not dead. In circumstances such as those referred to, it is difficult to persuade either set of institutions that each forms part of a greater system, and that both are therefore subordinate to the general interests of education in London.

3. Overlapping existed not only between, but also within, the two systems. This was more obvious perhaps, but probably no more real, within the technical education system. Although overlapping was partly due to want of knowledge of, or disregard of, each other's work, it was caused also in some measure by influences over which individual institutions had no control, *e.g.*, the development of trams, tubes, and motor-buses. This has diminished distances; institutions have been brought nearer. The student finds it easier to seek his technical instruction at a greater distance and at less cost than formerly. Increased travelling facilities deserve close observation from another point of view. They are causing large numbers of workers in particular occupations to migrate from one locality to another. Sometimes the workers have had to follow the trade or factory which had moved towards (or over) the county boundaries in search of land for extension or of lower rates. There has been a considerable movement of this kind during the last twenty years (1892-1912), and such a movement has had an important effect on the character of the instruction which ought to be offered at one school and to be abandoned at another.

Recent developments affecting the problem of evening education.

4. Further, all institutions have been primarily in search of numbers. There was also a sort of fashion in classes, one institution imitating another in establishing, without exhaustive examination of their need, classes which had attracted students in another locality. A brief consideration of such a new subject as aeronautics will illustrate the kind of thing that has occurred, and that may recur. The National Physical Laboratory and the Imperial College are collaborating in a scheme for the development of a school of aeronautics. If technical education of the highest kind in relation to such a subject is to be undertaken by institutions of the front rank, how far in any reasonably organised system is assistance or restriction to be offered to other institutions seeking to establish to the fullest extent similar instruction, even with what is called their own money? Having regard to all the circumstances, a distribution of functions is probably the best solution of the problem, the highest institutions undertaking teaching and research in its highest form, and some of the evening technical institutions undertaking the training of first-class artisans, of foremen, and of works managers. On such a basis there is room for the polytechnics to work at aeronautics. Other methods of distributing functions are, of course, possible. The point is that a distribution of functions is necessary, in order to ensure that opportunity is afforded for the highest quality of work, and also to provide an adequate quantity of the less advanced type.

Difficulties in the way of co-ordination.

Necessity for distribution of functions.

The absence of corporate spirit between one institution and another makes the task of co-ordination an ungrateful one. It should not be assumed that one institution looks on with approval while within what it regards as its territorial area the activities of another increase. On the other hand, institutions do not readily acknowledge the need for re-adjustment of activities between themselves and their neighbours, when theirs is the loss and the gain is to their neighbours.

5. Fees have been and still are an element in the undue competition of institutions. But consideration of this question cannot be confined to one institution and its neighbour or competitor. There is much to be said in support of a differential fee for districts of varying character. But a survey of the whole field would show that no one class of institution would be likely to escape criticism as to the relation of its fees to another class. Possibly on the whole the maintained institutions are in this respect the most serious competitors.

Variation in fees.

Much more serious than the differences in fees or the competition that arises therefrom is the danger that the student is likely to be misled into choosing the institution with the cheaper fee without regard to the quality of the instruction. To give but two examples. Within a given area one institution was offering a certain course of instruction at five guineas per session while another offered a similar course for ten shillings. How was the student to decide between the two? The 10s. fee in all probability was the determining factor. There are grounds for believing that the five-guinea course was better value for the money. The second example is that of a subject taught in the evening at four of the largest institutions; the fee charged is 12s. 6d., 30s., 50s. and 84s. respectively. The subject is in all four institutions taught by the same teacher. For the same subject 2s. 6d. is the fee charged in maintained institutions.

Institutions should adjust their fees to the class of pupils they ought to attract and compete not as to the price at which courses are to be provided but as to the quality of courses offered at the same money.

6. Again, there was overlapping into another field. Under its new constitution, London University had "recognised" certain teachers. That is to say, a student attending lectures or courses under such teachers was recognised as a student for an internal degree, and students working under unrecognised teachers had to take the external degree. This recognition brought a new and important influence into the institutions, and probably led them to seek to become schools of the University without any serious consideration as to the effect of their action on the general system of education in London.

Relations with the University.

Such an application inevitably raised the question of the original objects of the institutions. It was suggested that the original schemes of management pointed to the following conclusions—

(i.) That the institutions were for young men and young women belonging to the poorer classes.

- (ii.) That their function was a double one: recreation and education.
- (iii.) That the instruction was mainly to be technical, although other instruction was contemplated.
- (iv.) That the classes were as a rule to be held in the evening.
- (v.) That advanced classes were also contemplated.
- (vi.) That a university college (as generally understood) would be beyond the limits of the scheme.

Whatever may have been the original intentions of the founders of an institution or group of institutions it may be to the public interest that such institutions should alter their aims and objects. It is no part of the intention of this report to examine the arguments on the merits of the issue raised by some of the institutions. It is enough to put on record some views that were submitted to the Sub-Committee concerned. It was suggested that the institutions were not pursuing their true objective; that they should have sought a closer connection with the workshop, the factory and the commercial business house rather than an intimate association with the university whose influence would be academic; that institutions which had been extensively and expensively equipped for technical and industrial training should have devoted their attention solely to the problems of the industrial and commercial world so far as these could be advanced by educational institutions, and that their researches of a technological character and the register of their students who had secured high places in industry and commerce should alone have been set forth as their crowning achievements. All these problems, with the conception of a technical university, are now under the consideration of the Royal Commission on University Education in London; and they need not be further referred to in this report.

Relation of
the Central
Authority
and the Local
Institution.

7. The problem of adjusting the relationship of autonomous institutions to a general educational policy for London is not an easy one. The following suggestion was made to the Sub-Committee—

“It is important, however, that the Council should give its attention to the question raised as to the relations of a central controlling authority like the local education authority with local or separate and independent governing bodies of institutions like the polytechnics. It is very important that men of ability and of wide experience in affairs should be members of such governing bodies. Such men will only be secured if they can be made to feel that they are using well their valuable time. They would properly resent interference in details of administration, unless made a condition of grants which they have accepted, or of being over-ruled by a central body on matters on which they held the opinion that local knowledge was all-important, and should prevail. On the other hand the local education authority is responsible to the ratepayers for their annual call upon the rates which provide so large a sum as £80,000, or over one-third of the whole income of these institutions. Further, there is a distinct need for general guidance of so many institutions over a large area, and Parliament, seeing the need, has imposed on the Council, as local education authority, the duty of promoting the co-ordination of all forms of education within the county. It ought not to be difficult to adjust these relations and to secure that on the one hand the Council discharges its responsibility and its duty, and on the other hand that the governing bodies feel that they have important duties to perform and that they will not be unreasonably interfered with in the performance of them. The adjustment seems to lie in the principle that the governing bodies shall manage their institution in an independent way subject to three conditions.

These are that the London County Council shall be satisfied—

- (i.) That the governing body is pursuing a definite policy duly related to the general policy of higher technical education in London.
- (ii.) That instruction of all kinds is efficient; and
- (iii.) That economy is exercised in the administration.”

8. It may be said that the reconsideration during the last three years of the problems of higher technical education by all the bodies referred to has been most valuable, and that an attempt to obtain a general recognition of the problem as a whole and of the position of the different institutions therein has been partially successful.

Recent
decisions
with regard
to co-ordina-
tion.

There were, however, arising out of this consideration three sets of decisions of more than ordinary importance.

First, the Council adopted certain recommendations affecting the relationship of institutes all over the county. Only one detail need be mentioned here. A policy was adopted of closing science classes in evening schools in favour of polytechnics, and of discouraging polytechnics from continuing their commercial work. The second part of this policy was directly in favour of the commercial centres.

The second decision of importance was another experimental effort in the direction of local co-ordination. Catford and Woolwich were the selected areas. These areas more than others lent themselves to this experiment, which has so far been fairly successful.

Thirdly, on the recommendation of the Higher Education Sub-Committee, the Education Committee and the Council altered the fundamental character of the regulations under

which grants in aid of the polytechnics are administered. These are known as the block grant regulations.

9. One thing remains to be said. Certain defects in the system of higher technical education in London were rightly, and it is hoped fairly, subjected to criticism. But the criticism offered was directed to certain specific matters and was very far removed from anything in the nature of general condemnation. On the contrary, whatever conclusions are general must be of the nature of admiration for the splendid work achieved by these institutions and for the great public services rendered by their governing bodies.

Value of the services of governing bodies.

IX.—TEACHERS.

Seven thousand teachers are engaged in evening education—two thousand in polytechnics, technical institutes and schools of art, and five thousand in evening schools (including the commercial centres) and clubs. These totals do not include the large number of teachers employed in institutions which are neither aided nor maintained by the Council.

Number of teachers.

1. In the early years of evening schools, when they were largely repetitions of the day schools, a Government certificated teacher was accepted as qualified to teach any or all of the subjects of instruction; and in those days the staff of the evening schools consisted almost wholly of day school teachers. When, however, subjects which were not generally taught in the day schools began to be introduced into the evening school curriculum specialists had to be appointed, and these were obtained from business houses and private or secondary schools. The gradual widening of the scope of the curriculum kept up an increasing demand for specialists and by degrees the general character of the staff has undergone a complete change. In the last few years the day school teachers have been in a minority. No doubt the general improvement that had taken place in the position of day school assistants was a contributory factor in withdrawing them from evening school work. Of the five thousand instructors, three thousand specialists are drawn from occupations in which it is hoped they have gained those qualifications of knowledge and experience which are indispensable to their teaching. But although the day school teachers are in a minority as regards numbers, they hold all the responsible positions, their experience and skill in school management specially qualifying them to become the organising heads.

Increase in the number of specialists.

2. Evening school instructors in all subjects are now chosen from a panel or approved list. This list originally consisted of all instructors who had rendered satisfactory service in 1909-10. From time to time suitable candidates are added to the list by the Selection Section of the Teaching Staff Sub-Committee, and from this panel nominations for appointment are made by managers as vacancies arise. Dressmaking and millinery require 750 instructors, drawn mostly from workrooms. Two hundred medical doctors and a few nurses give instruction in home nursing, first aid, infant care, health, maternity nursing and midwifery. The teachers of shorthand and bookkeeping (some 1,000 of these) are largely recruited from business houses and Government departments. Many teachers of drawing are found in architects' offices. The higher subjects of commercial law, banking, accountancy, and economics, are taught by barristers or solicitors, chartered accountants, banking officials, and others similarly qualified. A type of lecturer still poorly represented in the evening schools is the teacher who is experienced in the wholesale and distributing industries, and who is able to treat his experience in a clear scientific way.

Panels of instructors.

3. Of the day school teachers who are engaged in the evening schools much has to be said in the nature of appreciation. It would be difficult to find so many in any other body of workers who give so strenuously of their best, and this applies specially to many responsible masters and mistresses whose energy and devotion do not always meet with the success they deserve at the hands of the students.

It is unfortunate, however, that the traditions of the day school have been allowed, to a large extent, to govern evening class procedure, so far as the *ordinary evening schools* are concerned. It is essential that these traditions should be laid aside. The methods that are suitable for scholars ranging from 7 to 14 years of age are not necessarily suitable for students who are much older. Too often the lessons of the day school are repeated in the evening schools—almost exact reproductions—the same limitations, the same illustrations, the same devices—and yet most of the teachers will readily admit that the more experienced the life the wider should be the range of appeal. The teachers do not all realise that these evening school students have entered into a new life since leaving the day school, and that they need the guidance, the knowledge, and the treatment that are appropriate to it.

4. Some of the specialists, in the earlier stages of their work especially, are a source of anxiety to the responsible masters and mistresses. They do not show sufficient regard for regulations and accuracy in regard to registration, and they have little or no idea of class instruction as distinguished from individual teaching; but, generally speaking, the great majority, within a reasonable time, adapt themselves to class conditions, and a few bring a new spirit into the schools, and some freshness into their teaching.

So far from deprecating the presence of this type of instructor in the evening schools, notwithstanding the initial difficulties already referred to, it must be said that they are a valuable addition to the staff, particularly so in the higher stages of the subjects which they are engaged to teach. The more advanced students are, to a great extent, independent of exact methods, their special need being a leader with a thorough and practical acquaintance with his subject. It is pleasing to note, too, that after a comparatively short period, not a few of these instructors reveal an enthusiasm for their work, a power of exposition, and a grasp of the needs of the situation, which seem to indicate a real capacity for teaching, and an ability to adapt themselves fairly readily to new conditions.

One reason may perhaps be advanced to account partially for the success of the non-professional teacher. Most of them realise their initial weakness in teaching, and the need for preparation of lessons. They know that, though their acquaintance with the subject taught may be sound and even wide, yet modes of presentation have to be thought out beforehand, facts and principles have to be marshalled in their proper order, illustrations have to be apt. In consequence, after some practice in teaching, an orderly sequence of ideas characterises many of their lessons, and points are thus driven home in a satisfactory manner.

The presence of so many of these men and women in the schools in the capacity of instructors is a sure indication of the advance that has been made. The ever-growing demand for specialised teaching is a symbol of healthy development.

Training of teachers.

5. The demand for specialists was more urgent on the part of the polytechnics, technical institutes, and schools of art. The only national institutions established with the object of training teachers for the new educational work were the Royal College of Science and the Royal College of Art. Each institution has done a great work. One criticism only could reasonably be directed against them, and that is that they had no requirement of general education as a preliminary to their course of science and art study. These colleges, however, provided only teachers of science and art. Teachers of great groups of technological subjects were in demand, and a supply had to be found somewhere. Even for higher general subjects and for languages the number of efficient teachers available fell far short of the requirement.

Local authorities had, therefore, much difficulty in securing a competent staff. Many of the teachers had book knowledge only; to these the practical men would not listen. Others had workshop or counting-house knowledge and no capacity for presenting their subject. Others again, like the foreign-born teacher of modern languages, had often no capacity for discipline, and sometimes only a distracting knowledge of English.

Gradually the universities and technical colleges, though perhaps not directly setting themselves to do training college work, began to supply a much better qualified instructor. The technical institutions, schools of art, science and art and commercial classes all contributed (some even did a "roaring trade," especially in science certificates) towards the provision of a supply of teachers. Miscellaneous facilities existed almost everywhere for obtaining science certificates, art masters' certificates, art class teachers' certificates, commercial certificates, and in most centres of industry, for obtaining technological certificates.

Apart from the work of the two colleges referred to, which covered only a small part of the whole field, there was no national plan of training teachers for this part of the educational system. On the whole, the supply was provided much in the same way as articles of food and clothing. There was a demand and ready money, and the best for the available money was generally obtained.

The Board's new regulations with regard to art teachers

6. The Board of Education, with the help of a Standing Advisory Committee for Education in Art, have issued new regulations for the award of certificates for teachers of art, on conditions which will, it is hoped, secure, in addition to high artistic attainments, the advantages of a general education and of a suitable course of professional training at some institution recognised by the Board. The future candidate for a certificate as teacher of art must, among other things, (i.) be over 19 years of age; (ii.) have satisfactorily completed a preliminary general education; (iii.) have afterwards completed an approved course of pedagogy and practice in leading art subjects; (iv.) have passed an examination in pedagogy and school management; and (v.) have passed an advanced examination in some special art subject.

The Council at once took steps to support the Board, and the following principles of action were approved in July last—

(i.) The professional side of the training of art teachers (*i.e.*, all work pertaining to pedagogy and teaching practice) shall be undertaken at the London Day Training College.

(ii.) The art work (*i.e.*, the instruction necessary to enable the students to pass the examinations in drawing, painting, modelling, etc.) shall be undertaken at such schools of art in the county as may subsequently be selected for the purpose.

(iii.) The art departments of one or two secondary schools, schools of art, trade schools, and elementary schools (hereafter to be selected), shall be attached to the London Day Training College, as practising schools.

The Council's proposals for training art teachers.

(iv.) The course of instruction in art work, and in professional training in teaching, shall extend over a period of three years after the examination in drawing has been passed, the first year to be devoted entirely to art instruction, and the second and third years to a combined professional (or pedagogic) and art course.

(v.) A part-time master of method and a part-time assistant art teacher shall be employed at the London Day Training College.

The Education Committee are to submit in due course the necessary recommendations to give effect to the foregoing resolution.

7. The permanent teachers in polytechnics and technical institutes are drawn from the universities or technical institutions of university rank, or from the ranks of industry and commerce—or both. The visiting teachers of trade subjects are drawn chiefly from the trade. The teachers of art—to a large extent visiting teachers—are either artists of repute, or are engaged in architects' offices, on illustrated papers or in private practice. So long as the visiting teachers keep in contact with trade, industry, or workshop, or increase their income in some form of practice, they are not likely to lose that touch which is necessary to keep their knowledge from becoming obsolete.

Teachers of technical subjects.

Evening teachers must be "live," in order to attract and hold adult students, for the evening student has a way of showing his dissatisfaction with his teacher which discipline and compulsory laws of attendance forbid in the day school. Expert knowledge, art of presentation and maintenance of discipline are all necessary; but one of them—expert knowledge—is indispensable. The existing system can hardly be regarded with complete satisfaction. As regards teachers of technical subjects, Mr. Briscoe, in his memorandum on page 41, remarks—

Importance of their keeping in touch with industrial and commercial life.

There is a real danger that, as the present generation of teachers grows older, touch may be lost with new developments, and that the technical schools may teach as current practice, not merely the practice of yesterday but the practice of the day before yesterday.

Mr. Briscoe alludes, of course, to the *permanent* members of a staff. The danger lies in the permanent teachers losing touch with industrial practice. The warning will be valuable if it leads to the exercise of greater caution in converting part-time appointments into permanent ones. To avoid becoming incompetent, the teacher must remain a student. In his endeavours to keep himself "alive" the London teacher has many opportunities which his provincial brother does not enjoy; perhaps, also, he has greater inducements to neglect his subject. He has access through the Council's classes for teachers to classes, lectures, demonstrations and laboratory practice under the guidance of original workers in schools of the university, and opportunities for refreshing his ear in foreign holiday courses. Not only has he almost at his door great libraries with their stores of treatises, encyclopædias, trade and professional publications, but large museums and collections, appropriate to every subject, are available for his use. Further, he has trade and professional associations and the learned societies, and no doubt, whenever suitably sought after, other opportunities of seeing all kinds of industrial or commercial examples, experiments, processes and machinery. He has also the opportunities of engaging in original research, especially in all the higher institutions; and there is possibly much more that he could do in the way of "costing" by subjecting the machinery and affairs of his own department to some of the commercial tests which the best firms apply as to life, repair and output. There is, further, the opportunity of consulting practice permitted in some institutions, forbidden in others. There are risks of abuse in permitting consulting practice, and glaring instances of abuse may be remembered, but the results of dead teaching are also obvious, and glaring instances of inefficiency cannot be forgotten.

X.—Cost.

1. In an earlier section it has been shown that rate expenditure on the higher work in the evening schools conducted by the School Board was arrested by the Cockerton judgment. The Act of 1902, however, removed the difficulty by classifying the whole work of evening schools as higher education, for which rate expenditure was made permissible. The same Act repealed the Technical Instruction Acts of 1889 and 1891, brought technical education within the scope of higher education, and made the "residue grant" applicable to higher education generally. Restrictions on the character of technical education, which was defined in the Acts of 1889 and 1891, were thus removed. At the same time the limit of rate expenditure on higher education was raised to 2d., except in the case of county boroughs, where no limit was placed on the amount. Finally the Act of 1903 removed any statutory limit to rate expenditure on higher education in London including, as has been seen technical education and evening schools.

Cost. The Acts governing rate expenditure.

In 1904 the funds available for technical education and evening schools were—

- (i.) The residue grant (see page 5).
- (ii.) The grants from the Central Governing Body of the City Parochial Foundation (see pages 5 and 6).
- (iii.) Grants from the Board of Education.
- (iv.) Fees.
- (v.) Rates.

Funds available for technical and evening education since 1904.

The sole funds administered by the Technical Education Board consisted of an annual vote by the Council out of the residue grant. The whole of this residue was not voted on any occasion; in fact, by 31st March, 1904, the Technical Education Board had spent a total of £1,553,927, while the residue grant received by the Council had amounted to £2,610,973.

Sources of income of the polytechnics.

INCOME AND EXPENDITURE OF THE POLYTECHNICS.

Total Maintenance Income of the Polytechnics.

(a)	Including £1,400 for girls' secondary school, removed at end of year.							
(b)	£561	55	55	55	55	55	55	55
(c)	£600	55	55	55	55	55	55	55
(d)	£1,800	55	55	55	55	55	55	55
(e)	£1,219	55	55	55	55	55	55	55
(f)	£236	55	55	55	55	55	55	55

Table showing the various sources of income of the Polytechnics and the percentages of the total income derived from each of those sources for the year 1910-11.

Institution.	A		B		C		D		E		F		G		H		I		J	
	£	Per cent.	£	Per cent.	£	Per cent.	£	Per cent.	£	Per cent.	£	Per cent.	£	Per cent.	£	Per cent.	£	Per cent.	£	Per cent.
City Parochial Foundation grants	3,560	13'37	1,700	13'64	3,680	17'91	1,500	13'94	4,847	24'15	3,450	18'42	5,500	13'74	—	—	3,427	15'46	1,000	5'31
L.C.C. grants	9,415	35'35	5,208	41'78	8,535	41'55	4,053	37'66	6,498	32'37	7,035	37'55	12,300	30'72	3,174	48'70	9,227	41'64	9,783	52'28
Board of Education grants	6,055	22'73	1,800	14'44	3,960	18'98	1,251	11'62	4,510	22'47	4,185	22'34	8,950	22'36	1,320	20'26	3,696	16'68	5,312	28'51
Grants from City Companies, City Charities, etc.	—	—	—	—	941	4'58	154	1'43	1,593	7'93	—	—	—	—	1,600	24'55	—	—	1,000	5'31
Voluntary subscriptions ...	126	0'47	—	—	177	0'86	81	0'75	126	0'63	36	0'19	51	0'13	—	—	—	—	—	—
Fees	7,296	27'39	3,309	26'54	1,794	8'73	2,359	21'92	1,852	9'23	3,522	18'80	9,974	24'91	408	6'26	4,980	22'47	1,383	7'00
Prizes and examinations ...	122	0'46	70	0'56	179	0'87	24	0'22	—	—	—	—	140	0'35	15	0'23	298	1'34	122	0'61
Lettings	35	0'13	180	1'44	—	—	316	2'94	123	0'61	451	2'41	331	0'83	—	—	53	0'24	42	0'21
Extraordinary income ...	—	—	100	0'80	—	—	60	0'56	—	—	—	—	17	0'04	—	—	—	—	—	—
Income from other sources	27	0'10	99	0'80	1,339	6'52	965	8'96	524	2'61	54	0'29	2,772	6'92	—	—	482	2'17	25	0'12
Totals	26,636	100	12,466	100	20,545	100	10,763	100	20,073	100	18,733	100	40,035	100	6,517	100	22,163	100	18,667	100

Table I. shows the principal sources from which the income of the polytechnics is derived. Occasionally grants are received from certain of the City Companies (*e.g.*, the Drapers' Company's recent gift to Battersea Polytechnic of £6,000 for the establishment of a department of hygiene) and from private donors (*e.g.*, Mr. Edric Bayley's gift to the Borough Polytechnic and Lord Leith of Fyvie's gift to Regent-street Polytechnic). The figures given in the tables do not necessarily denote the income derivable from any given year's working; they represent the actual amount received under the appropriate heading in the financial year concerned.

The following facts are brought out by the above table—

- (i.) The proportion of the total income contributed by the Council is increasing. There is a further increase in the proportion for 1911-12.
- (ii.) The total contributed by the City Parochial Foundation is stationary.
- (iii.) The amount received in students' fees is diminishing.

4. The growth of the Council's maintenance grants to polytechnics since 1893 is shown by the following figures—

Maintenance grants from the Council.

Year.	Total maintenance grant.	Year.	Total maintenance grant.
	£		£
1893-4	7,684	1903-4	41,724
1894-5	13,328	1904-5	48,720
1895-6	17,331	1905-6	60,701
1896-7	19,656	1906-7	69,215
1897-8	23,695	1907-8	72,882
1898-9	25,156	1908-9	72,802 (a)
1899-1900	30,665	1909-10	82,965 (b)
1900-01	31,751	1910-11	74,280 (c)
1901-2	32,440	1911-12	86,381
1902-3	37,687		

(a) This would have been £74,202 if a girls' secondary school had not been removed.

(b) This would have been £86,004 if two girls' secondary schools had not been removed.

(c) This would have been £77,619 if two girls' secondary schools had not been removed.

The above figures show the actual grants awarded by the Council for each of the educational years specified, and hence the figure for 1910-11 does not coincide with the amount shown in respect of the Council's grant in Table I. above, where the figures relate to the financial year.

In addition to maintenance grants to meet ordinary annual expenditure the Council has given capital grants from time to time towards the cost of extensions (sites, buildings, and initial equipment), and annual maintenance grants for equipment. It is not necessary to refer to these further than has been done in Section VIII., except to add that since "the appointed day" (1st May, 1904) the Council has given in capital grants to polytechnics a total of £181,861* for buildings and equipment. Towards ordinary annual expenditure the Council gave a grant of £202,797 for the triennial period 1905-8; £230,050† for the period 1908-11; and it has decided to grant £245,297 for the triennial period 1911-14 to nine polytechnics. The case of the tenth polytechnic remains over for further consideration. Even if that polytechnic were to receive only the same sum as for the term 1908-11, the total for the ten polytechnics would reach, during 1911-14, the sum of nearly £258,000.

5. The grants from the City Parochial Foundation are of two kinds—(a) compulsory under the schemes for the administration of the polytechnics, (b) discretionary, *i.e.*, variable at the will of the trustees of the foundation. The following are the compulsory grants awarded annually to the Polytechnics—

Grants from the City Parochial Foundation.

	£		£
Battersea Polytechnic ...	2,500	Northampton Polytechnic	3,350
Birkbeck College ...	1,000	Northern Polytechnic ...	1,500
Borough Polytechnic ...	2,500	Regent-street Polytechnic...	3,500
City of London College ...	1,000	South-Western Polytechnic	1,500
North-Western Polytechnic	1,500		
			£18,350

The total income (gross) of the City Parochial Foundation is approximately £103,000 per annum, of which £39,614 was given to the polytechnics during the year ended 31-12-11. The income (gross) of the foundation in 1900 was about £93,000, of which £31,438 was given to the polytechnics. The discretionary grant now amounts to over £17,000 annually.

Woolwich Polytechnic, as will be noticed, is not included in the list. That polytechnic, however, has had a discretionary grant of £1,000 a year since 1895, and this grant may be continued until the North-Western Polytechnic is erected. The grants of the City Parochial Foundation are available for the social as well as the educational work of the polytechnics. The Council's grants are available for educational work only.

6. Under the regulations of the Board of Education, the Board's grants take the form of a fixed annual grant—a block grant—or of a composite grant varying according to the subjects of instruction, and to attendances made at the classes. There are great variations in the proportion which the Board's grant bears to the total income of a given institution. For example, the percentage of total income of one polytechnic derived from the Board's grants in 1910-11 was 28·5 (the highest), that of another 11·62 (the lowest).

Grants from the Board of Education.

7. Wide divergencies are shown in the percentage of income derived from students' fees—varying from 27 per cent. in the case of A. to 6 per cent. in the case of H. (see Table II., page 30).

Students' fees.

* In the earlier years of the period under review, grants for the equipment of new buildings were made on rate, instead of, as at present, on loan account.

† Two secondary schools dropped out; deficit grants amounting to £11,000 are included.

Expendi-
ture by the
polytech-
nics.

The following tables give particulars as to the expenditure of the polytechnics—

TABLE III.

Statement showing the percentage of the total outgoings of the polytechnics as a whole in respect of the various maintenance charges.

Item of expenditure.	1908-9.		1909-10.		1910-11.	
	Amount £	Per cent.	Amount £	Per cent.	Amount £	Per cent.
Salaries and wages	131,179	63·74	131,019	64·58	132,172	64·51
Staff funds (provident, etc.)	2,862	1·39	2,782	1·37	3,133	1·53
Maintenance of classes... ..	12,767	6·20	11,439	5·64	11,109	5·42
Furniture and fittings, including repairs	3,264	1·59	2,403	1·18	2,669	1·30
Scholarships, examinations, and prizes	3,320	1·61	3,296	1·63	2,947	1·44
Printing, stationery, and postage	5,321	2·59	4,971	2·45	4,870	2·38
Advertising	2,600	1·26	2,052	1·01	2,032	1·00
Library and reading room	633	·31	600	·30	875	·43
Heating, lighting and power, water	9,961	4·84	9,526	4·69	8,643	4·22
Rent	4,755	2·31	4,557	2·25	4,661	2·28
Rates and taxes and insurance of premises	7,048	3·43	7,121	3·51	6,669	3·25
Repairs and alterations to premises	3,866	1·88	3,673	1·81	4,201	2·05
Depreciation funds	1,571	·76	1,319	·65	2,214	1·08
Cleaning	2,555	1·24	2,748	1·35	2,918	1·42
Grants to clubs, entertainments and lectures and re- freshment departments	1,194	·58	1,590	·78	1,527	·74
Audit fees, bank and law charges	618	·30	617	·30	639	·31
Loan charges	6,483	3·15	6,994	3·45	7,793	3·80
Sundries	5,793	2·82	6,188	3·05	5,811	2·84
	£205,790	100	£202,895	100	£204,883	100

TABLE IV.

Statement of the expenditure of the polytechnics for the year ended
31st July, 1911. Total number of students enrolled, 27,600. Total
number of hours of students' attendances, 4,317,366.

Item of expenditure.	Amount.	Percentage of total outgoings.	Cost per head on basis of number of students enrolled.	Cost per 100 hours of students' attendances.
	£		£ s. d.	£ s. d.
i. Salaries and wages	132,172	64·6	4 15 9	3 1 4
ii. Staff provident, compassionate, benevolent and staff insurance funds	3,133	1·5	0 2 3	0 1 5
iii. Maintenance of classes	11,109	5·4	0 8 1	0 5 2
iv. Furniture and fittings, including repairs	2,669	1·3	0 1 11	0 1 3
v. Scholarships and bursaries	1,076	·5	0 0 9	0 0 6
vi. Examinations	1,463	·7	0 1 1	0 0 8
vii. Prizes... ..	408	·2	0 0 4	0 0 2
viii. Printing and stationery... ..	3,623	1·8	0 2 7	0 1 8
ix. Postage	1,247	·6	0 0 11	0 0 7
x. Advertising... ..	2,032	1·0	0 1 6	0 0 11
xi. Library and reading room	875	·4	0 0 8	0 0 5
xii. Heating, Lighting and power, water	8,643	4·2	0 6 3	0 4 0
xiii. Rent	4,661	2·3	0 3 4	0 2 2
xiv. Rates, taxes and insurance of premises	6,669	3·3	0 4 10	0 3 1
xv. Repairs and alterations to premises	4,201	2·1	0 3 1	0 1 11
xvi. Depreciation funds	2,214	1·1	0 1 7	0 1 0
xvii. Cleaning	2,918	1·4	0 2 1	0 1 4
xviii. Grants to Clubs	829	·4	0 0 7	0 0 5
xix. Entertainments and lectures	607	·3	0 0 5	0 0 3
xx. Refreshments	91	—	0 0 1	0 0 1
xxi. Audit fees, bank and law charges	639	·3	0 0 6	0 0 4
xxii. Loan charges—interest and repayment	7,793	3·8	0 5 8	0 3 7
xxiii. Sundries and other expenditure	5,811	2·8	0 4 3	0 2 8
	£204,883	100·0	£7 8 6	£4 14 11

8. During the session 1910-11 (the year taken in Table IV.) the Council's maintained institutions were attended by 12,410 students, and these made 2,004,026 hours' attendance. The gross expenditure for the financial year 1910-11 was £89,198 (loan charges omitted). The gross cost per head and the gross cost per 100 student hours in the two groups of institutions are—

	Cost per head.	Cost per 100 student hours.
Polytechnics	£7 8 6	£4 14 11
L.C.C. institutions	7 3 9	4 9 0

Material is available for comparing these with the cost of three large provincial institutions of polytechnic character. The figures relating to these institutions are as follows—

				Cost per head.	Cost per 100 student hours.
Institution A	...	...	...	£5 9 4	£5 16 9
Institution B	...	...	...	5 0 9	(not available)
Institution C	...	...	...	6 2 4	ditto

Technical institutions vary so much as to the number and kind of departments they include that it is impossible to find anything like a reliable basis of comparison of cost as between one institution and another. But a comparison of the cost of groups of somewhat similar institutions, or of similar departments is sufficiently reliable to be useful. For example, there are ten polytechnics; the cost of Northampton Polytechnic, mainly an engineering school cannot be compared with the cost of the City of London (a commercial) College. But the cost per head, or per 100 student hours of the polytechnics, as a whole, should bear some comparison with the cost of the whole group of technical institutions maintained by the Council.

Comparison of the cost of different institutions.

Details of cost of similar departments of work will be found in Appendix D (pages 107-110). For obvious reasons names are omitted. General interest in the figures will, therefore, be small, but those who are really concerned will find much difficulty in explaining some of the larger differences.

The following tables give particulars as to the cost of the technical institutions maintained by the Council—

Institutions maintained by the Council.

L.C.C. TECHNICAL INSTITUTIONS (including Schools of Art and Trade Schools).

TABLE V.

Particulars of the cost of maintenance and of the amount of receipts since the financial year 1903-4 are shown below—

	Number of Institutes.	*Expenditure.	Receipts.	Net Cost to Rates.
		£	£	£
1903-4	10	31,778	2,609	29,169
1904-5	11	38,979	5,283	33,696
1905-6	12	51,925	7,519	44,406
1906-7	13	54,552	10,811	43,741
1907-8	14	59,109	13,705	45,404
1908-9	14	68,272	15,589	52,683
1909-10	17	80,822	19,859	60,963
1910-11	17	89,198	22,181	67,017

* The figures given for the earlier years in this column include certain amounts which are now charged to capital account.

The increase in expenditure and receipts is due chiefly to the transfer to the Council of institutes formerly aided and the provision of new, and extensions of existing, institutions.

The increase in receipts is also partly due to the decision of the Board of Education to recognise for purposes of grant certain institutes not previously included.

TABLE VI.

Cost per head of the institutions maintained by the Council.

Year.	Expenditure.	Receipts.	Net Cost to Rates.
	£ s. d.	£ s. d.	£ s. d.
*1903-4	7 11 2	0 12 5	6 18 9
1904-5	6 5 3	0 17 0	5 8 3
1905-6	7 2 1	1 0 7	6 1 6
1906-7	6 15 8	1 6 11	5 8 9
1907-8	6 14 1	1 11 1	5 3 0
1908-9	6 14 6	1 10 9	5 3 9
1909-10	6 18 3	1 14 0	5 4 3
1910-11	7 3 9	1 15 9	5 8 0

* Unreliable for comparative purposes.

EVENING SCHOOLS (SCIENCE, ART, AND COMMERCIAL CENTRES AND ORDINARY EVENING SCHOOLS).

Cost of evening schools.

TABLE VII.

Particulars of the cost of evening schools (including centres).

Financial Year.	Total Expenditure.		Per head.	
	Gross.	Nett.	Gross.	Nett.
(a) For the ten years prior to 1903-4.				
	£	£	s. d.	s. d.
1893-4	32,767	22,592	16 0	11 0
1894-5	36,554	21,549	15 0	8 10
1895-6	42,719	25,824	17 0	10 3
1896-7	42,246	22,917	16 0	8 8
1897-8	48,116	28,814	16 8	10 0
1898-9	73,340	55,330	13 5	10 1
1899-1900	86,203	64,378	13 8	10 2
1900-1	105,614	78,494	14 4	10 8
1901-2	106,559	72,842	16 0	10 11
1902-3	115,467	79,577	18 2	12 6
1903-4	137,960	102,925	19 1	14 2

N.B.—In these years no classes were conducted by the School Board in clubs, etc.

(b) For the period 1903-4 to 1910-11.

	£	£	s. d.	s. d.
1904-5	138,944	97,572	0 18 9	12 11
1905-6	144,404	98,088	0 18 5	12 6
1906-7	137,977	85,930	1 1 8	13 6
1907-8	127,764	82,688	1 0 5	13 2
1908-9	142,349	93,404	1 1 11	14 4
1909-10	141,079	92,338	1 2 3	14 7
1910-11	140,816	95,862	1 1 11	14 11

In calculating the cost per head (Table VII.) the amount spent on clubs has been included, but the number of students instructed in clubs has not been taken into account.

TABLE VIII.

Statement showing (a) the gross cost, (b) the net cost, and (c) the rate equivalent of the net cost of technical and university education provided by the Council, for the financial year 1910-11, compiled (as to gross cost) from the Financial Statement, 1910-11 (pp. 105, and following)—

Head of Expenditure.	Gross Cost.	Net Cost.	Rate Equivalent.
	£	£	d.
1. Polytechnics and technical institutions aided by the Council...	78,169	78,169	0.418
2. Technical Institutes and schools of art maintained by the Council	89,198	67,017	0.358
3. Evening schools and centres maintained by the Council ...	140,816	95,862	0.513
4. University education, including the grant to the Imperial College	27,770	27,770	0.148
5. Science, art, trade and technical scholarships	16,019	15,944	0.085
6. Examination of students under No. 5	588	588	0.003
7. Examination of other students	2,162	1,523	0.008
8. Cost of administration	18,223	18,223	0.097
	£372,945	£305,096	d. 1.63

In 1903-4, the last financial year of the late authority, the net cost was £102,925, and the number of students enrolled was 144,865 (see chart A), the cost per head being 14s. 2d. In the year 1910-11 the net cost was £95,862, the number of students enrolled was 128,464, and the net cost per head 14s. 11d. The net cost per 100 student hours for 1910-11 was £1 12s. 8d., but no like comparison can be made with the year 1903-4, as the number of student hours was not then ascertained.

In 1910-11, the produce of a penny rate over the whole county was £186,942.

XI.—SCHOLARSHIPS.

1. In 1905 the provision made by the Council for the award of technical scholarships was as follows—

(a) Thirty school of art scholarships consisting of free tuition at the day classes of a school of art for two or three years and maintenance grants of £10 or £20 a year. These scholarships were intended for students rather than for artisans.

(b) Thirty artisan art scholarships restricted to artisans and consisting of free tuition at the evening classes of a school of art for three or four years and maintenance grants of £10 or £20 a year.

(c) One hundred * evening art exhibitions open to either students or artisans, consisting of maintenance grants of £5 a year for two or three years, during which time the exhibitioners attended the evening classes of a school of art, paying their own fees.

(d) Two hundred and fifty evening science exhibitions of similar value to the art exhibitions and tenable at the evening classes of a polytechnic or technical institute.

* Increased to 120 from 1906-09.

Technical scholarships as they existed in 1905.

In October, 1909, after long and careful consideration of the whole scholarship scheme, the Council re-organised the technical scholarships. The following principle was laid down in regard to these and all other scholarships awarded by the Council—

Revision of the scheme in 1909.

That as far as possible no child or young person shall be debarred by poverty from obtaining the kind of education which will prepare him for the career for which his talents and character best fit him, and that the pecuniary emoluments attaching to the scholarships should be sufficient to enable students to obtain the kind of education, whether industrial, scientific, or literary, which is best suited to their needs and capacities, but not sufficient to induce them to undertake a particular course of study with the object of securing the pecuniary advantages attaching to the scholarship.

The scholarships offered under the revised scheme were as follows—

(a) 60 art scholarships consisting of free tuition at the day classes of a school of art for two or three years and maintenance grants not exceeding £50 a year.

(b) 110 evening art exhibitions consisting of free tuition at the evening classes of a school of art for two or three years and maintenance grants of £3 a year.

(c) 15 science scholarships, consisting of free tuition for two or three years at the day classes of a college or technical institute of university rank, and maintenance grants not exceeding £50 a year.

(d) 180 evening science exhibitions of similar value to the art exhibitions and tenable at the evening classes of a polytechnic or technical institute.

In every case the scholarships or exhibitions are open to either artisans or students.

2. The following were the principal changes made—(i.) the artisan art scholarships for evening students were abolished; (ii.) 30 additional day art scholarships for craftsmen were substituted therefor; (iii.) the maintenance grants attached to science and art exhibitions were reduced from £5 to £3 a year, but free tuition was provided in lieu thereof; (iv.) the numbers of art and science exhibitions were reduced from 120 to 110 and from 250 to 180 respectively; and (v.) 15 day science scholarships were established.

It may be pointed out that the artisan art scholarships for evening students were discontinued because it was considered that, in view of the fact that the scholars were presumably working at their trade in the day time, the maintenance grants attached to the awards were unnecessarily high (ten scholarships at £20 a year, and twenty at £10 a year).

It was considered, however, that some provision should be made for intelligent artisans who had already taken up a craft as their life's work, and who were prepared to devote themselves to study for a certain period with a view to widening their knowledge of that craft, to be given an opportunity to relinquish their occupation for two years or more while receiving advanced instruction. In order to meet such cases, the artisan art scholarships were merged into the school of art scholarships under the new title of art scholarships, with the restriction that 30 of the 60 scholarships were to be set apart in the first instance for persons who were actually engaged in artistic crafts, and who were prepared to take up full-time study.

In the case of the evening art and science exhibitions, the students under the old scheme were required to pay their own tuition fees at the various institutions. As, however, the fees differed widely, it was considered desirable for the Council to be responsible for the fees, as is the case in almost all of its other awards. On the other hand, the maintenance grants attached to the exhibitions were reduced from £5 to £3 a year, since the latter sum was considered sufficient to meet the necessary travelling and incidental expenses of students who were prepared to attend evening classes. It was also deemed advisable to make provision for science scholarships similar to the art scholarships, and accordingly 70 evening science exhibitions were replaced by 15 day science scholarships for the benefit of persons working in skilled non-artistic trades such as electrical, mechanical and mining engineering.

In selecting candidates for the award of art and science day scholarships, regard is paid in the first instance to the past achievements of the candidates and to the reports of the teachers under whom they have worked. All successful candidates are interviewed and the maintenance grants are assessed in each case after careful consideration of the circumstances and proposed future course of study of the candidates. Applicants are also required to submit specimen works for the Council's inspection or to undergo certain test examinations as a guarantee of their ability.

Method of selection for scholarships.

The following figures show the number of candidates for art and science scholarships and the number of awards made during the past three years—

Statistics of scholarships for the past three years.

YEAR.	ART.						SCIENCE.	
	Number of applications received.			Number of scholarships awarded.			Number of applications received.	Number of scholarships awarded.
	Artisans.	Non-Artisans.	Total.	Artisans.	Non-Artisans.	Total.		
1910	35	55	90	16	23	39	80	11
1911	15	58	73	7	13	20	51	15
1912	35	60	95	17	21	38	38	9
Total ...	85	173	258	40	57	97	169	35



3. It is perhaps too early to form any reliable opinion as to what extent the artisans under the revised regulations ultimately derive benefit in their trade by the advanced instruction which they receive, but, judging from the reports of the principals of the schools attended, the scholars appear to be on the whole an earnest set of students who do credit to their training and who execute work of a high standard of merit. From the non-artisan scholars, the Council partly draws its supply of art teachers; other scholars take up appointments in commercial work as designers, illustrators, and so on.

Special talent scholarships.

Two special talent scholarships in art have been awarded to students of very exceptional ability, who had already held ordinary art scholarships for the full period of tenure. In one case a grant of £100 was given to enable the scholar to study sculpture and architecture in Italy, and in the other, the scholar was awarded free tuition at the Slade School of Art and a grant of £60 for further training and practice in book illustration.

Institutions where the scholarships and exhibitions are tenable.

The candidates for both the art and science scholarships compete from schools of art, polytechnics, and technical institutes from all over London, but in the case of the science scholarships, it is noteworthy that a large proportion of the successful candidates reside in Woolwich, and have undergone their trade training at the Woolwich Arsenal.

The scholarships may be held at art schools and technical institutes where there are suitable day classes. At the time of writing (November, 1912) there are 40 students holding art scholarships—consisting of maintenance grants not exceeding £50 and free tuition—at the Royal College of Art, and 20 students holding science scholarships of similar value at the Imperial College of Science and Technology. The majority of the art students are undergoing a course of training with a view to becoming art teachers: the majority of the science students have already served several years in engineering works, and are now receiving scientific instruction in the engineering department of the Imperial College.

Evening exhibitions.

4. The art and science exhibitions are awarded to candidates of either sex, who are, or whose parents are, in receipt of an income not exceeding £160 per annum. Fifty of the 110 art exhibitions are awarded, in the first instance, on the result of an examination in model and geometrical drawing, and the remainder upon the merits of the specimen works submitted by the candidates. The science exhibitions are divided into two sections—Class A and Class B. The Class A exhibitions are confined to candidates under 18 years of age in the case of men, and 19 years of age in the case of women, who have attended the Council's evening schools or centres for two sessions, and during that time have made thereat not fewer than 150 hours' registered attendance. The competition in Class A has not been keen during the last few years. It was decided to simplify the examination syllabus, and with this object in view, the examination for the award of special subjects certificates in workshop arithmetic and workshop calculations was utilised for the award of the evening science exhibitions in 1912. This arrangement led to a considerable increase in the number of candidates, and 45 exhibitions were awarded in 1912 as compared with 19 awarded in 1911. The awards in Class B are made on the result of a test examination conducted by the Council or by the City and Guilds of London Institute, or after the inspection of specimen works submitted by the candidates.

Statistics of exhibitions for the past three years.

The following figures show the number of candidates for art and science exhibitions, and the number of awards made during the past three years—

YEAR.	ART.		SCIENCE.					
	Number of applications received.	Number of exhibitions awarded.	Number of applications received.			Number of exhibitions awarded.		
			Class A.	Class B.	Total.	Class A.	Class B.	Total.
1910	376	109	61	486	547	13	116	129
1911	336	110	68	470	538	19	144	163
1912	265	110	114	390	504	45	122	167
Total ...	977	329	243	1346	1589	77	382	459

Cost of the scheme.

5. The technical scholarships form only a part of a comprehensive scheme of scholarships for all kinds of students. The annual cost of the whole scholarship scheme is nearly a quarter of a million; the technical scholarships referred to here cost about £10,000 annually. In the case of the art and science day scholarships, the Board of Education, on the fulfilment of certain conditions, recognise the scholars as local exhibitors in cases where the combined value of the free tuition and maintenance grant exceeds £25 a year. This recognition entitles the Council to the payment of a grant consisting of the excess of £25 over the total value of the award, such excess not exceeding £25, and also to the remission of fees in the case of scholars attending the Royal College of Art and the Imperial College of Science and Technology. In 1910-11, the value of the grant in money and free tuition amounted to £1,200; in 1911-12 the grant will probably amount to about £2,300.

General remarks.

6. On the whole the existing scheme for the award of these technical scholarships and exhibitions appears to be working satisfactorily, although several modifications may subsequently have to be introduced. The right type of scholar and exhibitor is being secured, and,

although in some cases there is not a sufficiency of good candidates to warrant the full number of awards being made, the number of applicants will doubtless increase as the awards become more widely known and appreciated. As regards the science scholarships the figures given above do not adequately represent the position. In 1910, a large proportion of the applications came from unsuitable candidates, but in subsequent years the number of such cases has decreased. On the other hand the fact that only 9 out of 15 scholarships were awarded in 1912, would appear to indicate either that there is not a sufficiently large annual output of suitable candidates from polytechnics and technical institutes, or that the value of the scholarships is not sufficiently great to induce the workers to give up their employment in order to take up the scholarships. Great care has been taken to keep the standard of the selected candidates up to a high level and, judging from the progress they are making at the institutions to which they are attached, excellent use of the awards is being made.

The part of the scheme to which most criticism has been directed is that providing for the substitution of day for evening scholarships in art. It has been urged that by the abolition of the artisan art scholarships much of the incentive to evening students to remain in attendance has been removed, that the average attendance of students at evening classes has accordingly suffered, that the more advanced students have practically ceased to attend, and that the standard of work now done at the schools is inferior to that which formerly obtained.

XII.—THE POLYTECHNICS AND TECHNICAL INSTITUTES.

(Memorandum by Mr. A. E. Briscoe, A.R.C.Sc., B.Sc., Divisional Inspector.)

I.—Scope of the various institutions.

The development of the work of the polytechnics * has proceeded along lines that have been conditioned partly by the character of the neighbourhood which they serve and partly by the bent of the men who have directed their work in the early stages of their existence.

The line of work adopted by each institution was in the first instance largely an experiment, except in one or two cases, such as the Woolwich and Northampton Polytechnics; local industrial conditions afforded little or no guide, and present developments are the result of a process of experiment followed by success in some directions and failure in others. A wide variety of work was attempted, and only experience has shown in what direction concentration could take place. The conditions have greatly changed since the first days of the movement; owing to the increased traffic facilities London has become smaller and districts are not now so isolated as they were 15 years ago, with the result that institutions serve a wider area than they did at first.

The oldest institution of all doing technological work, Regent-street Polytechnic, draws its students from all over the London district; placed, as it is, in the very centre of West-end traffic, it is probably more accessible than any institution in London.

Even here there has been concentration, and during the last few years certain types of work have been abandoned and others have been strengthened. The main technological work is centred round the building and engineering trades, in which in addition to evening classes there are day schools intended to give a training to boys who have been through a secondary school course, and who intend to enter upon professional work at about the age of 18 or 19. There is also a large photographic school doing work not attempted elsewhere.

Battersea Polytechnic was in the first instance not well placed for serving a wide district, but with the advent of electric traction on the railways and tramways of South London, its position has of late much improved. It has a strong chemical side, and is the natural home for classes in technical chemistry—so far as the West of London is concerned; its engineering departments, both electrical and mechanical, are strongly developed; building trade classes, which in the early days were a great feature, have been affected by the opening of the mono-technic school of building at Brixton. One of the most important sections of the work is the training college for teachers of domestic economy, now the largest in Great Britain.

The Borough Polytechnic is the home of the trade class, and its evening work is concentrated on teaching the ordinary artisan, in trades as various as confectionery and bootmaking, the scientific principles and the practice of his trade. In the day there is a school for boys which serves as a preparation for apprenticeship at the age of 16 or 17, and a trade school for girls preparing them to enter the needle trades and laundrywork.

The South-Western Polytechnic, placed in a district which is largely residential, has developed into the equivalent of a provincial university college; it has a well equipped engineering department, and has also developed a most successful training college for gymnastic teachers in secondary and elementary schools.

Woolwich Polytechnic is in the centre of engineering industries, and has developed a very strong engineering side as its chief work; it has been unusually successful in obtaining the co-operation of employers.

The conditions prevailing in the area served by it are more like those of a large provincial industrial town than any other portion of London; the district is a somewhat isolated one,

The Polytechnics and Technical Institutes. (Memorandum by Mr. Briscoe).

I. Scope of the work of the various institutions.

* This memorandum deals only with technological instruction in the narrower sense. No reference is therefore made to the work of the Birkbeck College, which does work mainly of a university type, or the City of London College, whose work is primarily commercial instruction, though both these rank as Polytechnics.

and the polytechnic is the natural centre for all higher education of a scientific or artistic type. In addition to the secondary day school housed for the time being in the polytechnic there is also a school of art and a day trade school for girls preparing for the needle trades.

The Northern Polytechnic is well placed geographically and serves a wide area in the north and north-east of London; its strong feature is the building trades department, but it possesses also a small but exceedingly efficient engineering department, and it does a considerable amount of evening university work of more academic type.

The Northampton Institute is the most purely technical of all the polytechnics; its engineering departments, both electrical and mechanical, are the best equipped in the county, and the work reaches a very high standard. There is also a department for technical optics; a school of artistic crafts and a horological school. All these branches have to do with local industries.

The youngest of all the institutions of polytechnic rank is the Sir John Cass Technical Institute at Aldgate. This institute has a strong chemical school, in which special attention is given to the scientific basis of the fermentation industries; important work is done also in metallurgy and in the artistic side of metal work. The institute has been unusually successful in attracting industrial students holding good positions, who come to keep themselves abreast of the latest scientific developments affecting their trades.

The Leathersellers' Technical College is a monotechnic which is in close connection with the tanning industry, and so far as the south of England is concerned is a unique institution. The very highest scientific work connected with the technology of leather is carried on, and there are also evening classes for workmen.

The institutes maintained by the Council vary considerably in character; on the whole they are more specialised than the polytechnics. The Bolt-court School of Photo-engraving and the School of Building at Brixton are pure monotecnics dealing with the industries indicated by their titles.

The School of Engineering and Navigation at Poplar has two sides; the engineering work being similar to that carried on in polytechnic evening classes, whilst the navigation classes are intended for seamen taking the qualifying examinations for the Board of Trade certificates.

The Shoreditch Technical Institute is mainly devoted to the needs of the woodworking and furnishing trades.

The Westminster Technical Institute is developing into a school of civil engineering, and provides also for persons engaged in the manufacture and supply of gas. Just recently a school for training men cooks has also been started.

The Paddington Technical Institute has more of the polytechnic character than any of the other institutes maintained by the Council; its strongest development is on the side of mechanical and electrical engineering, but it has also well attended building trade classes.

The evening technical work in engineering and building trade subjects which formed a part of the work at the Goldsmiths' Institute at New Cross, is being temporarily carried on by the University delegacy in the same buildings, with the aid of a grant from the Council. Proposals are at the present time under consideration for the erection of a new institute on a site in Lewisham High-road to which these classes will be transferred.

The Hackney Technical Institute, which was transferred to the Council in 1909, holds evening classes of a technical character in engineering, building, and chemistry; some pure science work of a more academic type is also carried on. A day school preparing boys to enter the engineering trades has also been started. Proposals are under consideration for the extension of the buildings.

II.—*Special experiments and general observations.*

(1) *Evening technical education.*

II. Special experiments and general observations.

(1) Evening education.

A good deal of very uninformed criticism is directed against instruction in evening classes; it is often urged that such work cannot be effective; that attendance must be irregular; that students are frequently too tired physically and mentally to make the best use of the time available, and that they are also ill-prepared by their previous education.

There is some truth in these contentions, but those who urge them have but a superficial acquaintance with the work that is being done, and their views would be materially altered if they would but spend a week in a close inspection of the work that is actually done in a polytechnic or technical institute.

The first thing that would strike them would be the eagerness to learn manifested by the senior students; it must be remembered that a considerable number of students drift into evening classes year by year in a somewhat purposeless fashion; when they find that progress means hard work on their part they have not the grit that is needed to keep them at work, and they drift out again. This happens invariably in the classes attended by students in their first year; afterwards the falling off from this cause practically ceases, and it is no uncommon thing for a senior class to keep practically all its students through the session with the exception of those who have removed from the district or who have had to cease attending through ill-health.

The evening technical student is, as a rule, much more in touch with actual life than the day student. He has less time for study, but he makes more effective use of it; day by day he is in contact with practical problems in the workshop that are unknown to the day student.

until he has left the institute. He has practical knowledge that forms an excellent basis on which an able teacher can build; he comes to his work frequently physically tired, but his mental faculties are keen, and the change of work is to him in the nature of a recreation.

For such students, teaching must be concentrated; in order that they may waste none of the time at their disposal, especially in the laboratory, the work must be carefully planned, apparatus got ready and experimental lectures carefully prepared. It is safe to say that in the best managed institutions every hour's work in evening classes means at least another hour spent by the staff in actual preparation for it within the laboratories and classrooms; there is danger that this may not be recognised and that sufficient time may not be allowed the teaching staff for the purpose.

As regards ability to take advantage of the higher forms of teaching, those who as teachers and students have experience of the work of evening classes during the last five and twenty years are well aware of the great improvement that has taken place in this respect. The widening of the elementary school curriculum and the great improvement in the work of the secondary schools, especially during the last ten years, is producing its effect, and the evening student is to-day far better prepared to assimilate the teaching given in evening classes, than was the case when the polytechnics first opened their doors. The rise in the standard of work done has been the most marked feature of the last ten years, and in many institutions evening students are doing work in their subjects quite equal to that required for a university degree.

That this work has to be done under difficulties is not altogether a bad thing; it makes the men who do it stronger mentally and morally, and if a man has only the necessary physical stamina, he is all the better for the struggle that it involves.

Evening classes in London have to meet competition in the shape of amusements and other attractions to an extent that is unknown in the large provincial centres, and except in districts where special conditions prevail, such as Woolwich, the evening student lives at such a distance from the place where he works that he spends much more time in travelling from his home to his work and back again in the evening than the evening student in the provinces, while the hours of work are as a rule quite as long. Further, the provision in London, on an adequate scale, of evening technical education, is the growth of the last twenty years, while in the large provincial centres such evening classes have been in existence for double that time. All these things tell against the efficiency of evening classes in London, and when they are taken into consideration London does not suffer by comparison.

London lags behind the great provincial centres in the provision made for preparatory courses in the ordinary evening schools suitable for those who intend to follow industrial pursuits. A very interesting experiment is now being conducted in the Woolwich area with great promise of success; a two-year course suitable for lads who are engaged in the engineering and building trades has been started in practically all the evening schools in the area; the work done is preparatory to the more advanced courses held at the Woolwich Polytechnic, and the teachers in the evening schools are working in close co-operation with the staff of the polytechnic.

There is room for the extension of such work to other areas in the county.

There is need of special provision for evening technical instruction for boys below 16 years of age who are engaged in unskilled employment. This problem can in all probability be best attacked by the development of an educational side to the numerous boys' clubs that exist in connection with churches and settlements. As an example of most successful work in this direction the Devas Institute at Battersea may be quoted. Here the recreative and educational work go on side by side, on the principle of "no attendance at classes, no football or gymnasium."

The Borough Polytechnic is making an attempt to do similar work for van boys; in the Herold's Institute at Bermondsey (a branch of the Borough Polytechnic) a social and recreative club for van boys is being started. An attempt is being made to give the boys some training in the care and management of horses, so that they may get work as carmen as they become older.

(2) *Day technical education in polytechnics and maintained institutes.*

In the early days of the polytechnic movement most institutions started day schools of a technical type, which later, owing to the demand which arose, developed into secondary schools of the ordinary type; during the last few years these schools have been moving out into special buildings, and before many years have passed none of them will remain.

The day departments other than secondary schools fall into two groups which may for convenience be called secondary technical and primary technical.

The former pre-suppose an education of a more or less secondary type, and have a minimum age limit of 16 years. With the growth of the system of central schools, there is little doubt that the demand for this type of school will increase.

The most successful day school of the type at present is the engineering school at the Northampton Polytechnic. The course is a four-year one; of this, the first and half the second are spent in the institute; during the six summer months of the second year the students go out into workshops where they work under commercial conditions; their names are placed upon the wages list, and they are subject to the ordinary workshop discipline. The arrangements for placing them are made by the principal of the institute, who devotes a great deal

(2) Day education.

(a) "Secondary technical" schools.

of time and trouble to finding suitable openings. At the end of six months they return to the institute, and in the following summer they again go out into works; the fourth year is spent entirely in the institute, and at the end of it a diploma is given based on the work of the four years in both institute and works. This course has been most successful, and so far no difficulty has been experienced in placing students who have successfully completed it. Similar schools exist at Regent-street Polytechnic, at the Battersea Polytechnic and the South-Western Polytechnic.

(b) "Primary technical" schools.

The primary technical school takes boys at the age of 13, and gives them a pre-apprenticeship training, sending them out at from 16 to 17 into trade workshops as apprentices or improvers. The number of schools of this type is likely to increase in number during the next few years.

The day school at Shoreditch may be taken as typical; taking the course as a whole, half the time may be said to be devoted to general education and half to technical; more stress being laid upon general education during the earlier part of the course and upon technical during the later. The school prepares boys to enter the furniture and woodworking trades.

A secondary school of the ordinary type at the Borough Polytechnic was about four years ago converted into a school of this type preparing boys to enter the engineering and metal-work trades; it works on similar lines to Shoreditch, and the change has been a great success.

A thoroughly practical day trade building school has been instituted at the School of Building at Brixton; this has two sides; one preparing for the workshop and the other for the more professional work of the drawing office.

Engineering trade schools have been carried on for some years at Poplar and Paddington, and another has just been started at the Hackney Technical Institute.

(c) Day classes for apprentices.

Day classes for apprentices.—Another field of work with almost unlimited possibilities of expansion is the holding of day classes for apprentices in the ordinary workshop hours.

The first experiment in London was made at the Battersea Polytechnic, where special classes were held in the early morning for apprentices at the London and South-Western Railway works; the experiment was a complete success, but came to an end owing to the removal of the works to Eastleigh, near Southampton.

Following on this, the Royal Arsenal authorities arranged with the Woolwich Polytechnic for the holding of similar classes, partly in the afternoon and partly in the evening for their apprentices. The advantage of these classes has been felt all round; the apprentices continue to attend evening classes when no longer under compulsion to do so, and they form a backbone of well-trained students who set a standard of work and attainments which reacts upon all the higher work of the evening classes.

Similar classes are now being started at the Northampton Polytechnic for those engaged in the electro-plating trades.

Classes for printers' apprentices have been held in several institutions during the last few years, and similar classes for silversmiths and jewellers were started at the Central School of Arts and Crafts in 1909.

Both the day schools and the apprentices' classes are an attempt to deal with technical training upon lines which recognise that the functions of the technical school and the workshop are complementary.

In the school there is time to teach systematically, and to explain the why and wherefore of processes, and to give the knowledge of science, mathematics and drawing that lies at the root of all intelligent practical work; the workshop supplies the stimulus of commercial conditions and experience of production on the large scale without which a workman cannot attain the highest skill in his craft.

These classes provide only for the boy who enters a skilled trade, and until the last few years no such opportunities were open to those who entered employments which had to be abandoned as they grew older. Public interest in this matter was roused by the report of the Poor Law Commission, and the Government departments employing boy labour, some of whom were great offenders, have been attempting, in conjunction with the education authorities, to provide suitable opportunities for the boys in their employ. One of the best of these attempts is that conducted by the Borough Polytechnic on behalf of the Admiralty, which has resulted in the drafting into trades of a considerable proportion of messenger boys on leaving the service.

(3) Relation between the institutions and the trades.

(3) Relation between the institutions and the trades.

The connection between the institutions giving technical instruction and the trades concerned has not hitherto been so intimate in London as it is in the great northern towns. The greater demands upon the time of employers and managers, and the distances at which they live from their works, make it more difficult to obtain their services upon advisory committees and governing bodies.

Public interest is, however, being roused, and it is easier than it was ten years ago to obtain such help.

Speaking generally, it may be said that employers, and—what so far as young workmen are concerned, is more important still—foremen, are far more appreciative of the work done in technical schools than they were ten years ago. Many of the younger generation of employers have had the benefit of a scientific training, and the foremen are the evening students of 15 to 20 years ago, and are more ready than the old race of foremen to encourage the younger employees to attend classes; many of them go out of their way to help the lads in their employ in choosing suitable classes.

Of course the old antipathetic spirit is not entirely dead; only a month ago, an evening student at one of the larger institutions, an indentured apprentice, was threatened with dismissal because he attended evening classes contrary to his master's wish. He very wisely consulted the principal, who was able to obtain legal advice for him, with the result that the employer withdrew his threat. On the other hand, a canvass recently made at Woolwich brought out the fact that the mass of employers in that district, particularly the larger ones, recognised the value of the instruction given at the Polytechnic.

Much is to be hoped from the work of the consultative committees, representing directly the employers and workmen in various groups of trades, that the Council has recently instituted. The inspections they have made and the reports they have presented have already been of the highest value.

(4) *The training and qualifications of teachers in technical institutions.*

The higher positions in polytechnics and technical institutes call for men of considerable scientific and technical knowledge; such men, as a rule, have had the advantage of a training in modern universities or technical colleges of the highest rank, and the amount of enthusiasm they have brought to their work is beyond praise. The one danger to be feared is that the demands upon their time made by the work of their institutions may be so great that they have no time to keep pace with recent developments, or to undertake that original work which will keep their minds fresh and active.

There is a real danger that, as the present generation of teachers grows older, touch may be lost with new developments, and that the technical schools may teach as current practice not merely the practice of yesterday, but the practice of the day before yesterday.

Most institutions are alive to this, and it is becoming more and more a regular practice to allow teachers on the permanent staff time and opportunity for original work, and, subject to proper safeguards, to allow them to undertake consulting work.

An interesting experiment has recently been made in one of the institutions maintained by the Council; a part time appointment as head of a department has been given to a man engaged in industrial work. He will have the general direction of the work of the department, but most of the routine management of the laboratories will be carried on by a full-time teacher acting under his direction.

In some institutions the governing bodies have been able to secure the services of industrial experts, to give special courses of advanced lectures. The Northampton Polytechnic and the Sir John Cass Technical Institute are good examples of the benefit resulting from this practice.

For the lower ranks of teachers, much yet remains to be done. It is exceedingly difficult to find men who have both ample technical knowledge and teaching ability.

The solution of the difficulty may be attained in two ways—

For preliminary evening class work, where the subjects taught are more general than technical, it will probably be found possible to select from the ranks of the teachers in elementary and secondary schools those who have what may be called the engineering instinct, and to give them further acquaintance with practical work by workshop courses in one of the larger technical institutions. With the development of the system of central schools, there will be a considerable increase in this type of teacher.

For the more purely technical work, the problem will have to be attacked from the other end, and some attempt needs to be made to give definite training in teaching methods to young and promising men with the necessary technical knowledge who desire to become teachers. An attempt is being made this session to do something of this kind. The University professor of education, Professor Adams, is delivering a course of lectures specially suited to the needs of technical teachers.

In training craft teachers for the ordinary schools, useful work is being done at the Shoreditch Technical Institute, where what is in effect a training college for teachers of manual work in elementary schools has been gradually evolved from the courses for manual training pupil teachers started at Orange-street, Southwark, by the London School Board.

Similar work on the women's side has been conducted with marked and increasing success at the Battersea Polytechnic Training School of Domestic Economy, which has been in existence since 1894; this is now the largest training college of its kind in Great Britain, and its old students are to be found in all classes of schools.

The question is often asked "Has technical education in any sense justified the views of its promoters?"

Looking back on the work of the past 25 years, the writer thinks it may safely be said that it has. A great deal of prejudice had to be overcome, but manufacturers are more and more coming to see the necessity of technical training, and in the strenuous international competition of recent years the trades and the firms that have held their own successfully have been those in which the value of scientific control of materials and technical training of employees have been most fully carried out. The present and rising generation of works managers are usually technically trained men and are more ready than the older generation to appreciate the value of such training for their workpeople.

The rising generation of employees also sees the necessity for it; only last week the writer was told by the works manager of a West-end firm, whose name is a household word, that practically every boy who comes to learn his trade in their workshops makes early inquiry as to what evening classes he should attend.

A. E. BRISCOE.

(4) The training and qualifications of the teachers.

Conclusion.

XIII.—ORIGINAL RESEARCH IN POLYTECHNIC INSTITUTIONS.

(Memorandum by C. W. Kimmins, M.A., D.Sc., Chief Inspector.)

Original
research in
polytechnic
institutions
(Memoran-
dum by Dr
Kimmins).

The influence of the University of London on polytechnic institutions in connection with the recognition of teachers has had a far-reaching effect in the output of original work carried on by these institutions.

In order that a teacher may be recognised by the university, it is not only necessary that he shall possess high academic qualifications and teaching experience, but also that he shall have shown ability in carrying out original investigations. The university also requires that he shall receive adequate remuneration and that his time shall not be so fully occupied in actual teaching as to preclude him from doing a certain amount of research work. The result has been that the governing bodies of polytechnics have been careful, in making new appointments to important positions in their institutions, that they shall satisfy the requirements laid down by the university, so that the teachers may be recognised in due course. In many cases it was necessary to re-adjust the staff of some institutions so that internal students preparing for the degrees of the university should be taught by recognised teachers. The consequence has been that, whereas ten years ago the polytechnics took practically no part in original investigation, and it was a rare occurrence for papers from members of the staff or advanced students in these institutions to appear in the proceedings of the learned societies, at present a very creditable amount of original work of an important nature appears in these publications.

Although naturally a large proportion of the original work done in polytechnics is carried out by members of the staff, an ever-increasing amount of original work is done by more advanced students, including a certain amount of post-graduate work by students who remain after taking university degrees, to carry out original investigations. The value of this advance cannot be gauged entirely by the output of research, as the indirect effect on the students in institutions living in an atmosphere of investigation must in itself have a value which it would be difficult to over-estimate.

The polytechnics aided by the Council at which the output has been considerable are the Sir John Cass Technical Institute, the Northampton Polytechnic, and the Birkbeck College.

In response to a request from the education officer with regard to research work the following particulars were received from these institutions for the period 1902-9.

Statement
of research
work carried
out during
the period
1902-9.

SIR JOHN CASS TECHNICAL INSTITUTE.

List of research work carried out at the institute since the commencement of its work in September, 1902—

I.—Department of physics and mathematics.

No.	Title of Paper.	author.	Date of publication.	Journal.
1	Chemical dissociation and electrical conductivity ...	R. S. Willows and A. E. Garrett	1904	"Philosophical Magazine."
2	Action of a magnetic field on the discharge through a gas	R. S. Willows ...	1905	Do.
3	Effect of a transverse magnetic field on discharge ...	J. Peck ...	1905	Do.
4	Action of radium on the electric spark ...	R. S. Willows and J. Peck	1905	Do.
5	Electrical resistance of alloys ...	R. S. Willows ...	1906	Do.
6	The dynamics of two wheels connected by an axle rolling on a rough horizontal plane	G. M. K. Leggett ...	1905	Read before the Cambridge Philosophical Society.
7	Electrical conductivity produced by heating salts ...	A. E. Garrett ...	1907	"Philosophical Magazine."
8	Pirani's method of measuring a self-inductance ...	E. C. Snow ...	1909	Communicated to the Physical Society.
9	Action of radium on a brush discharge ...	A. E. Garrett ...	1909	(Not yet published.)
10	Potential gradient in the striated discharge...	A. E. Garrett ...	—	Do.
				Not yet published

The following investigations were being carried out in 1909—

1. Work on a heated lime kathode.
2. Electrification by splashing.
3. The electrical potential required to produce a vacuum discharge.
4. Magnetic and crystallographic properties of certain steels.
5. Velocity of gaseous ions.

II.—Department of Chemistry.

No.	Title of Paper.	Author.	Date of publication.	Journal.
1	Studies in enzyme action, the effect of "poisons" on the rate of decomposition of hydrogen peroxide by haemase.	G. Senter	1904	Proceedings of the Royal Society.
2	The role of diffusion in the catalysis of hydrogen peroxide by colloidal platinum.	G. Senter	1905	Do.
3	The condensation of salicylamide with aryl aldehydes	Charles A. Keane and W. S. Nicholls	1907	Journal of the Chemical Society.
4	The condensation of diethylmalonamide with aldehydes	Charles A. Keane and H. Burrows	1907	Do.
5	The autolysator, an apparatus for the automatic determination of carbon dioxide	Charles A. Keane and H. Burrows	1908	"Journal of the Society of Chemical Industry."

The following investigations were being carried out in 1909—

1. Condensation products of amides with aldehydes.
2. Substitution products of benzoïn.
3. The action of chlorides of sulphur upon amides.
4. Methods for the separation of aliphatic acids.

In addition to the above the following subjects have been investigated by students in connection with the industries in which they are engaged—

1. White lead substitutes for pigments.
2. The use of animal refuse for artificial manures.
3. The chemical bleaching of waxes.
4. Soluble resins for paper glazes.
5. The sulphonation of aromatic amines.

III.—Department of metallurgy.

No.	Title of Paper.	Author.	Date of publication.	Journal.
1	A graphic method for the computation of blast-furnace charges	C. O. Bannister	1904	Proceedings of the "Institution of Mining and Metallurgy."
2	The assay of auriferous tinstone	Do.	1906	Do.
3	The relation between the type of fracture and the micro-structure of steel test pieces	Do.	1906	"Journal of the Iron and Steel Institute."
4	The case hardening of mild steel	C. O. Bannister and W. J. Lambert	1907	Do.
5	The thermal properties of cupels	C. O. Bannister and W. N. Stanley	—	Communicated to Institution of Mining and Metallurgy. Not yet read.

The following investigations were being carried out in 1909—

1. The effect of glazing various classes of iron and steel.
2. On the comparative values obtained by determining the calorific power of steam coals in various forms of calorimeter.
3. The examination of a white metal bearing which failed during use.
4. The micro-structure of meteorites.
5. The thermal properties of cupels. A continuation of the work mentioned above. (No. 5.)
6. On the surface structure of solders.
7. On sulphur in steel.
8. The analysis of platinum alloys.

In addition to the above, the following subjects have been investigated by students in connection with the industries in which they are engaged—

1. On the extraction, reduction and properties of tungstic acid.
2. Examination of the crystalline structure and microscopic constitution of nickel.
3. Comparison of the various methods used in the assay of cyanide solutions.
4. Comparison of the various methods suggested for the assay of auriferous stibnite.
5. Comparison of the various methods suggested for the assay of telluride gold ores.
6. On the determination of oxygen in steel.
7. The surface structure of cupellation beads.
8. The structure of aluminium bronze and the effect of heat treatment.
9. On the magnetic concentration of siliceous iron ores.
10. On the preparation of ferro-silicon in the electric furnace.

Summary of the number of investigations carried out at the Sir John Cass Technical Institute since the commencement of its work in September, 1902—

Department.	Number of published investigations.	Number of investigations in progress.	Number of investigations made in connection with the industries in which students are engaged and which have not been published.	Total for each department.
Physics and mathematics	10	5	—	15
Chemistry	5	4	5	14
Metallurgy	5	8	10	23
Total for the Institute				52

NORTHAMPTON POLYTECHNIC.

Notes on researches.

Electrical engineering department—

Session 1907-8.

By fourth year day students.

1. Variation of the resistance of bismuth in steady and alternating magnetic fields. By Messrs. Fortin and Tingley.
2. Investigation of the properties of insulating varnishes. By Messrs. Birch and Webster.
3. Investigation of the behaviour of alternate current supply meters on loads of different power factor. By Messrs. Martin and Phillips.
4. Investigation of the illuminating properties of gas mantles. By Messrs. Martin and Phillips.

By members of the staff.

5. On luminous efficiency and the mechanical equivalent of light. By Dr. C. V. Drysdale assisted by Mr. A. C. Jolley. (Proc. Roy. Soc., Vol. 80, 1907; Soc. Française de Physique, May, 1908.)
6. Theoretical and experimental investigations on the ratio and phase displacement of transformers. By Dr. C. V. Drysdale, assisted by Mr. A. C. Jolley. (Physical Soc. Proceedings, Vol. XXI. Phil. Mag., July, 1908.)
7. Measurement by the universal standardising bridge and new standard coils, designed at the Institute. By Dr. C. V. Drysdale and Mr. A. C. Jolley. Described at the British Association, 1907, published in the *Electrician*, September and October, 1907.
8. Theoretical and experimental investigations on the propagation of alternate currents in cables. By Dr. C. V. Drysdale, assisted by Mr. C. M. Dowse and Mr. A. F. Burgess. (*Electrician*, December, 1907, to January, 1908. Physical Soc. Proceedings, Vol. XXI., Phil. Mag., July, 1908.)
9. Investigation of plug permeameter, designed at the institute. By Dr. C. V. Drysdale, assisted by Mr. A. C. Jolley. (Physical Soc., Vol. XXI. Phil. Mag., July, 1908.)
10. Investigation with direct current and alternate current motors. By Dr. C. V. Drysdale and staff.
11. Investigation on the dynamometer brake. By Mr. A. C. Jolley.

Session 1908-9.

By fourth year day students.

12. On motor losses. By Messrs. Batstone, Oglesby and Whitehorn.

By evening students.

13. Investigation of the distribution of light from arc lamps. By Messrs. Taylor and Parker.

By members of the staff.

14. Tests on phase shifting transformers designed at the institute. By Dr. C. V. Drysdale, assisted by Mr. A. C. Jolley. (*Electrician*, December, 1908.)
15. Theoretical investigations on the luminous efficiency of a black body. By Dr. C. V. Drysdale, assisted by Mr. A. F. Burgess. (Physical Soc., Jan., 1909. Soc. Française de Physique, Jan., 1909.)
16. Investigations on the alternate current potentiometer designed at the institute. By Dr. C. V. Drysdale, assisted by Mr. A. C. Jolley. (Physical Soc., vol. XXI. Phil. Mag., March, 1909.)
17. Methods of determining the temperature of glow lamp filaments. By Mr. A. C. Jolley.
18. Investigations on the inductance of straight conductors and of armature reactance. By Messrs. A. C. Jolley, A. F. Burgess and H. Gerrard.
19. Mathematical and experimental investigations on the theory and errors of wattmeters. By Dr. C. V. Drysdale, assisted by Mr. A. C. Jolley.

20. Investigations on the absolute measurement of radiation. By Dr. C. V. Drysdale, assisted by Mr. A. C. Jolley.
21. Further tests on mechanical equivalent of light. By Dr. C. V. Drysdale, assisted by Mr. A. C. Jolley.
22. A fair amount of investigation is at present also being performed in connection with wireless telegraphy and telephony.

Mechanical engineering department—By members of the staff.

23. Paper on "An electrically controlled testing machine and some torsion tests." By Mr. C. E. Larard. (Institution of Mechanical Engineers' Proceedings, 1907.)
24. The economical combustion of fuel and a boiler-testing installation. By Mr. C. E. Larard.
25. The behaviour of material under torsional stress during the elastic and plastic periods. By Mr. C. E. Larard.
26. The effects of keyways and flats on the elasticity and strength of shafting. By Mr. C. E. Larard. (Research for Engineering Standards Committee.)
27. A new instrument and its uses in the determination of small torsional strains. By Mr. C. E. Larard.
28. A mathematical and graphical analysis, showing the working of premium systems for the remuneration of labour. By Mr. C. E. Larard.
29. Further researches on the elastic and plastic behaviour of materials under torsional strain. By Mr. C. E. Larard. (By grant from the Royal Society.)
30. A new impact testing machine and some researches on the behaviour of material under impact. By Mr. W. Longland.
31. The effects of the use of water spray on the efficiency and working of internal combustion engines. By Mr. R. O. Boswall.

Technical optics department—

By evening student.

32. Aberrations of microscope objectives. By Mr. C. Crouch.

By day student.

33. Aberrations in telescope systems. By Mr. T. Y. Baker.

By members of the staff.

34. The aberrations of photographic lenses. By Mr. S. D. Chalmers. (Published as the Traill Taylor Memorial Lecture, October, 1907.)
35. The evaluation of coma and other aberrations in optical systems. By Mr. S. D. Chalmers.
36. The optical properties of some crystals and some optical glasses. By Mr. S. D. Chalmers.
37. The grinding and polishing of surfaces of double curvature. By Messrs. S. D. Chalmers and H. S. Ryland.
38. Some methods of protecting surfaces. By Mr. H. S. Ryland.
39. Wide angle kinematograph lenses. By Mr. R. A. Ives. (Published September, 1908.)

Technical chemistry department—

By a member of the staff.

40. The variation of composition of electro-deposited brass with change of conditions. By Mr. S. Field. (Paper read before the Faraday Society.) Another phase of this investigation has since been undertaken, together with a series of experiments on the corrosion of metals by the alternating current in various solutions.

BIRKBECK COLLEGE.

Chemical research.

1907-8.

1. Alex. McKenzie and H. A. Müller—The racemisation by alkali, as applied to the resolution of r-mandelic acid into its optically active isomerides. (Trans. Chem. Soc., 1907.)
2. Alex. McKenzie and H. Wren—The preparation of l-benzoin. (Trans. Chem. Soc., 1908.)
3. Alex. McKenzie and G. W. Clough—The displacement of halogen in l-phenylchloroacetic acid by hydroxy and methoxy groups. A contribution to the chemistry of the Walden Inversion. (Trans. Chem. Soc., 1908.)
4. Alexander C. Cumming—Malacone, a silicate of zirconium. (Trans. Chem. Soc., 1908.)

5. Dr. Cumming also carried out some further research in physical chemistry, and this is being continued in the University of Edinburgh.
6. H. Wood and H. B. P. Humphries (students) were engaged in work on stereo chemistry.

1908-9.

1. Alex. McKenzie and G. W. Clough—Experiments on the Walden Inversion II. The inter-conversion of the optically active mandelic acids.
2. Alex. McKenzie and H. A. Müller—Studies in asymmetric synthesis VII. The influence of the d-amyl group.
3. Alex. McKenzie and H. B. P. Humphries—Studies in asymmetric synthesis VIII. The asymmetric synthesis of mandelic acid.
4. H. B. P. Humphries—A problem dealing with the Walden Inversion.
5. G. W. Clough—Also engaged on a problem dealing with the Walden Inversion.
6. H. G. Rule—Working on d-amyl gellates.
7. G. M. Painter—Certain actions with oxydates.
8. G. H. Martin (evening student)—An application of Grignard's action.
9. H. Wood (student)—Asymmetric synthesis.
10. Dr. H. Wren—Derivations of l-benzoin.
11. Dr. Alex McKenzie—The resolution of atrolactic acid into its optically active components.
12. Dr. Wm. Maitland—Specific heats at high temperatures.

Physical research.

1907-8.

1. Dr. Griffiths—Diffusive convection.
2. B. W. Clack—On diffusion of saline solutions.
3. A. M. Glass—Absorption of aqueous and other vapours by glass, cotton, etc.
4. F. J. Cheshire—A new polarising prism.

1908-9.

1. Dr. Griffiths—The above continued.
2. B. W. Clack—The above by different methods.
3. D. Owen and H. Hitschke—Di-electric constants of paraffin wax, etc.
4. H. R. Nettleton—Thermal conductivity of mercury and other metals.
5. F. J. Cheshire—Improved model of human eye, showing short sight, long sight and astigmatism.

Botanical research.

1908.

1. D. T. Gwynne Vaughan—On the real nature of the tracheae of the ferns. (*Annals of Botany*, 1908.)
2. D. T. Gwynne Vaughan—On the origin of adaxially-curved leaf-traces in the filicales. (*Proc. Roy. Soc. Edin.*, 1908.)
3. D. T. Gwynne Vaughan with Dr. R. Kidston—On the Fossil Osmundaceae. Part II.—*Zalesskya gracilis* and *diploxyton*. Part III.—*Thamnipteris*, *bathyppteris*, *anomorrhea*.

1909.

4. E. M. Cutting—On the meaning of the differences of the male gametes of the pines. (*New Phytologist*, 1908-9.)
5. E. M. Cutting—On the development and sexuality of the ascogonium of *ascophanus carneus*. *Pers.* 1906-9. (Just finished, has occupied three years.)

Record of
investiga-
tions carried
on during
1910-11.

The results obtained during the session 1910-11 in the direction of original work are remarkable, not only from the volume and importance of the researches carried out, but also by the fact that promising beginnings are being made in research in institutions in which practically no work of this kind has been done before. In one institution a research was of sufficient merit to be published in the Proceedings of the Royal Society, and other investigations were aided by special grants from the Royal Society.

The following is a brief record of the original investigations carried on during the session 1910-11—

Battersea Polytechnic—Engineering department—The head of the electrical engineering department has carried out an important piece of research which will be published shortly.

Physics department—A research on electric discharge had been carried out successfully.

Chemical department—Several problems of technical bearing have been investigated with success.

Birkbeck College—Chemical department—Two papers have been published in the transactions of the Chemical Society and four other pieces of work are in progress. Seven students, including one graduate, are doing regular research under the direction of the staff.

Physics department—One paper has been published in the transactions of the Physical Society, and nine other pieces of work are being carried out by four members of the staff and five advanced students.

Botany department—Four researches have been published and nine others are in progress. In addition to the above, minor researches have been carried out in the mathematical, zoological and geological departments.

Northampton Polytechnic—Mechanical engineering department—Members of the staff and some advanced students have been carrying on their work on torsional stress, for which a special grant has been provided by the Royal Society.

Electrical engineering department—Very little original work has been carried out by this department, as the staff have been fully occupied on the new generating station.

Good technical research work of a minor character has been carried out in the optical and aeronautical departments.

Northampton Polytechnic—Mechanical engineering department—Members of the staff and three members of the staff and two advanced students. One research has already been published in the Transactions of the Chemical Society, and two others are nearly ready for publication.

Physics department—Two important papers have been published, one of which, on the physical properties of building stones, has been awarded the Telford Premium of the Institute of Civil Engineers. Two other researches are in progress, one being aided by a Royal Society grant.

Some minor researches have been carried on in the botanical department.

Regent-street Polytechnic—The rebuilding of the polytechnic has naturally interfered very considerably with the research work in this institution. One paper from the chemical department has, however, been published in the transactions of the Faraday Society and three other pieces of work are in hand.

A useful investigation on the efficiency of secondary batteries has recently been completed in the electrical engineering department.

Sir John Cass Technical Institute—This session no less than thirteen papers giving the results of researches carried on in this institution have been published in the proceedings of various learned societies. One, a mathematical research, has been published in the Proceedings of the Royal Society. Four of the investigations were carried out under Dr. Willows in the physics department; three in the metallurgical department, and one in the chemical department.

Several other investigations have been carried out, the results of some of which are nearly ready for publication.

South-Western Polytechnic—During the session sixteen papers giving the results of original investigations have been published and several others are in progress. Many of the researches carried out have an industrial bearing.

Woolwich Polytechnic—In the chemical department three pieces of research work have been carried out, and one in the physics department. The advanced students in engineering have had an interesting course of training in original research, and some fairly good results have been obtained.

It will be seen from the above that original research is forming an increasingly important part of the work of polytechnic institutions, and as much of the research has an industrial bearing, the direct value of this important development will be more clearly evident than in cases of original work in pure science. It is interesting to notice that already the investigations are taking special directions in different institutions. This is especially noticeable in the case of the Sir John Cass Technical Institute, which is establishing a first-class reputation for special kinds of research.

C. W. KIMMINS.

XIV.—THE DEVELOPMENT OF THE ART AND CRAFT WORK IN THE LONDON SCHOOLS FROM 1904–1912.

(Memorandum by Mr. A. H. Christie and Mr. W. G. Thomas, art inspectors.)

The most important development in the education provided in the schools aided and maintained by the Council for the London art students and students of artistic crafts during the period covered by this report is the continued tendency to increased concentration of definite courses of study in individual institutes. Beyond one or two schools devoted to special subjects such as the L.C.C. Shoreditch Technical Institute, the L.C.C. School of Photo-Engraving and Lithography at Bolt-court, the Sir John Cass Technical Institute and the Northampton Polytechnic, the instruction afforded was formerly of a much less specialised character than is now the case. The frequent duplication of classes in neighbouring institutes was perhaps a natural result of conditions then existing, but now passing away. The operations of each institute were much more restricted to definite localities owing to the lack of rapid and inexpensive means of communication. The improved means of communication which have been developed in London during the past few years have been an important factor in rendering possible this concentration of work which is bringing about a very

Art and craft work (Memorandum by Mr. Christie and Mr. Thomas).

Increased concentration.

considerable re-adjustment of courses of instruction. Schools which had attempted to draw local students to classes in special subjects have abandoned this course in consequence of the growth of schools dealing specially with these subjects in centres more generally accessible where better accommodation and equipment and the best teaching that can be procured are being provided.

Develop-
ments in
individual
institutions.

In addition to the schools mentioned above, the L.C.C. School of Building at Brixton has developed into a monotechnic institute of first class rank dealing especially with architecture and the various trades connected with building. The premises were in 1909 very considerably enlarged, and the accommodation and equipment provided renders this school the most completely organised for its special purpose now existing in London. This school deals so successfully with the great number of students and apprentices resident in the south-western district that arrangements are being made to concentrate classes of a similar character in some building in the north of London in order to deal adequately with the large portion of the building trade which lies outside the range of the Brixton school.

The L.C.C. Central School of Arts and Crafts, long housed in temporary buildings so inconvenient as to hamper considerably its development, has been transferred to new and commodious premises, and a new whole time principal has been appointed. This has rendered possible the re-organisation of the work done here. A number of classes dealing with various branches of important London industries have been grouped together into definite departments. Of these, the "book production," and the "goldsmiths", silversmiths' and jewellers'" departments have, so far, developed more fully than the others. The "book production" department deals specially with printing, bookbinding and allied work. The L.C.C. School of Photo-Engraving and Lithography had quite outgrown its cramped and inconvenient quarters in Bolt-court. New premises have recently been opened. This school continues to do most excellent work. Of all the special schools in London it has probably had most effect upon the trade with which it is connected. The L.C.C. Hammersmith School of Arts and Crafts, another of the Council's institutes ill-accommodated in unsuitable premises, has been transferred to a new building. The attendance and work of this school have very largely increased and developed. The Westminster School of Art has been transferred to the L.C.C. Westminster Technical Institute, where it occupies a series of well-planned classrooms. Extensions and rearrangement of buildings devoted to art and craft work have also been completed at the L.C.C. Paddington Technical Institute and the L.C.C. Camden School of Art. Amongst the aided institutes the school of art at the Goldsmiths' College (London University) has been rebuilt, and the arts and crafts department of the Borough and Battersea Polytechnics have been extended.

Day
instruction.

Trade
consulta-
tive com-
mittees.

For the most part students attending the arts and crafts schools during the day are art students, that is, students not definitely connected with any industry. The day preparation for industrial pursuits, which is organised most completely, is that given in the day trade schools. These schools, largely filled by holders of the Council's scholarships, undertake the preparation for specific industries of pupils drafted from the elementary day schools. In the organisation of these day trade schools the Council has been advised by the trade consultative committees. These are composed of representatives of employers' associations and of trade unions connected with London industries, together with a number of artist craftsmen appointed by the Council. Of these committees, that dealing with the book-production industries has been longest in existence. It has done most useful work in connection with the various classes in printing, bookbinding, etc. A similar committee dealing with the goldsmiths', silversmiths' and jewellers' trades is also established, and one to deal with house-furnishing and decorating trades has been formed. An important question now being discussed by these committees is that of the future employment of the students attending the Council's trade schools. It is satisfactory to note that this most urgent matter is being considered by groups of employers and others who possess knowledge not only of the requirements of various trades but also of education.

After-
employment
of students.

Scholar-
ships.

The question of the after employment of students in schools of art is one that has not received sufficient attention. It is very desirable that some organised method of providing, if possible, for the after career of the many students trained in the schools of art should be considered. We are of opinion that a consultative committee similar in composition to those already established should be formed to deal with this question and to bring employers of various kinds and art students into closer relationship with one another.

The scholarship system at present in operation for discovering and developing artistic talent is incomplete. A type of student which it is very desirable to attract to the evening art and craft classes is the young pupil who is just leaving school. These pupils are overlooked by the scholarship scheme. Experience shows that the £3 evening exhibitions set aside for young students are usually won by artisans of about 17 or 18 years of age. It is very desirable that a scholarship of about £1 in value, carrying with it free tuition should be established. Also, there is now no provision of valuable scholarships to enable students of exceptional talent to travel abroad or to pursue special courses of study. Recent experience has shown these to be necessary for exceptional cases. The results of the recent changes in the scholarship scheme, by which the more valuable evening artizan scholarships were abandoned, has been to deplete many of the evening classes of their most advanced students. The £3 evening exhibitions do not appear to be of sufficient value to appeal to the most advanced artizan students. In order to retain students of the standard formerly in attendance, it would be well to provide a liberal number of more valuable evening scholarships to encourage advanced craft work.

It has been found that the organisation for dealing with the education of the students holding the £50 day scholarships is unsatisfactory. There are not in existence classes dealing with all the subjects required by these students. It is urgently necessary to consider the provision of advanced courses of study affording efficient instruction for all the holders of these day scholarships.

The transfer of the L.C.C. Central School of Arts and Crafts to new premises opens up important matters for discussion. The work to be done in this school and its relationship to the other London schools of arts and crafts remain to be determined. There is at present no great school in London dealing with the most advanced education in crafts and industrial art, doing work corresponding to that undertaken by the Royal Academy and the Slade school in fine art. It is very desirable that an institute of this standing should be established which would provide accommodation, staff and equipment, to deal efficiently with this phase of education.

The Central School of Arts and Crafts.

The organisation of London education under one authority has brought about very satisfactory results so far as the co-ordination of the art work done in the evening schools is concerned. The classes carried on in these schools are of two grades. Both are now working on well-defined syllabuses without overlapping with each other or with the schools of art. The promotion of students from these classes to the schools of arts and crafts is a question which demands some attention. It should be possible to draft promising students to any school, aided or maintained by the Council, which it would be to the best interests of the student to attend, whether this school is in the immediate neighbourhood of the continuation class or not.

Co-ordination with evening schools.

The art teachers now available for all types of schools are in general much better equipped for their work than formerly. Teachers are drawn from a much wider field and are much better able to adapt themselves to the peculiar technical requirements of the different forms of instruction now being developed. Whilst the artistic training of all teachers has undoubtedly improved, their professional training is too frequently inadequate or too casual. No facilities exist for affording the art student in training as a teacher, professional experience in the theory and practice of teaching. It is essential that schools of various types should be available for the students who hold the Council's scholarships for training art teachers. This matter has recently received the attention of the Board of Education, and the Council has under consideration a scheme which will probably remove these defects.

Art teachers.

The evening classes which provide supplementary instruction in drawing for teachers in elementary schools are doing good work. They are well attended and their number has been increased.

Classes for teachers.

Courses of lectures by eminent authorities on painting, sculpture and architecture having special reference to the museums and art collections in London have been provided for teachers. These have secured good audiences and have proved stimulating and instructive.

On looking back over the work of the past eight years, the period has been characterised by remarkable activity in every phase of artistic education. The facilities afforded to the student who wishes to prepare for some particular artistic career have been vastly improved. It is most important, however, that the young students entering upon a definite course of work and diligently applying themselves to study should be assured of ultimate entry into the industrial world. The solution of this question of the relationship between education and employment, with the many complicated problems which it involves, must occupy all those concerned with the future of the artists and artistic craftsmen of London.

Conclusion.

ARCHIBALD H. CHRISTIE.
WILLIAM GEORGE THOMAS.

XV.—EVENING SCHOOLS.

1. *General character.*

The evening schools directly conducted by the Council meet, as a rule, from the third week in September to Easter; the commercial centres remain open until Whitsuntide. Some classes are, however, continued until the middle of July. There are three kinds of evening schools, viz—

General character of evening schools.

(1) Science and art and commercial centres, generally referred to as commercial centres (30).

(2) Ordinary evening schools, fee-paying (183) and free (51).

(3) Schools for the deaf (11).

The subjects of instruction are determined by the needs of the students. In the commercial centres the instruction is of a more advanced character than that given in the ordinary schools and includes accountancy, banking and currency, bookkeeping, Civil Service subjects, economics, English literature, modern languages, law (commercial and municipal), machinery of business, shorthand, typewriting.

The subjects of instruction in the ordinary evening schools include—

General—Reading, composition, writing and arithmetic, elementary science, elementary drawing, citizenship, vocal and instrumental music, first aid.

Literary and commercial—English literature, modern languages (French, German, etc.), geography and history, commercial correspondence and office routine, book-keeping, shorthand (including typewriting).

Art—Model, freehand and geometrical drawing, light and shade, perspective, woodcarving, repoussé, etc.

Manual instruction—Woodwork, metalwork.

Domestic subjects—Cookery, dressmaking and cutting-out, first aid, home nursing, health, infant care, needlework, laundrywork.

Physical exercises—Drill, gymnastics, swimming (in summer).

Few things are so striking about the evening school system as the variety of student and subject.

Students as various as teachers and civil servants, clerks, salesmen, saleswomen and foreign correspondents, agents and caretakers, van boys and commercial travellers, policemen, domestic servants, dressmakers and midwives, telephone operators and maternity nurses, all find special provision made for them. The standard of work varies from that of a consecutive course of instruction over a series of years in advanced commercial law or banking and currency to that of the address given to a constantly changing audience of women in the outpatient department of a London hospital. There are classes for those at work, for those out of work, and for those who do not work. There are schools for those who can pay and schools for those who cannot. There are classes in Welsh, in Irish, in Yiddish and in Japanese; and classes in English for aliens. There are choral unions and social evenings; there are classes in which clothes are made up, and some even in which the weekly washing is put through. Neither politics nor religion is taught, but there is much that the student of politics or of religion may learn.

2. Commercial centres.

(Memorandum by Mr. W. J. Chalk, M.A., responsible master of Barnsbury-park commercial centre.)

Commercial centres.
(Memorandum by
Mr. Chalk).

The evening commercial centre is an integral part of the educational machinery of London. Its main function, that of ministering to the educational needs of the boy or girl of average education just entering business life, and of the adult who has already attained some position in the commercial world, is quite clear; but the proper development of these schools in respect to their main function has been hindered to some extent by their performance of other unrelated duties, legacies of the time when the evening school, the only institution of its kind, was necessarily all things to all men.

History of
their de-
velopment.

The ordinary evening school is the parent of the commercial centre. The first centres were started fourteen years ago, when the London School Board was the education authority. The principle apparently adopted was to convert the most flourishing of the ordinary evening schools, position and other circumstances being considered, into centres at which instruction, commercial, scientific and artistic, of a higher type might be obtained. This was the first attempt to impart a distinctive character to the work of certain evening schools, and it was attended with immediate success. The fact is noteworthy, inasmuch as this distinctiveness of type has been naturally developing since, and it is probable that the future expansion of centre work will depend largely on the further development of the idea.

At first, science and art played an important part in the curricula of the centres, the classes in which were largely supported by elementary teachers, as students, seeking qualifications. By the time, however, that the transfer of education to the London County Council was accomplished, the commercial classes largely predominated. The scheme of co-ordinating the centres with the technical institutes and polytechnics from the year 1905 onwards determined the ultimate fate of the science classes, and without going into details it may be said that the teaching of science in the centres is fast tending towards the vanishing point. About the same time there came into force a similar scheme of co-ordination which transferred from the centres to the schools of art the higher branches of work in arts and crafts. The subsequent falling-off in the number of art students must not, however, be considered as due to the operation of the scheme. It must be remembered that during the same period the Council and the Board of Education by their regulations and policy deprived teachers to a very large extent of the incentive towards obtaining paper qualifications of the South Kensington variety, while, in addition, special art classes for teachers were started apart from the centres. Previous to the date of the enforcement of the scheme the art classes consisted mainly of teachers; subsequently they attended in decreasing numbers, and although it is difficult to trace any decided increase in the art students other than teachers, there is no doubt that the development of the craft side of the work, the modernising of the courses on the lines of those in the schools of art, and the gradual elimination of the kind of work and organisation which was the direct result of the thralldom exercised by the South Kensington examinations, are steps in the right direction.

Strong hopes had been entertained that, as the result of the transfer of much of the higher work in science and art to the polytechnics and schools of art, there would ensue a regular flow to those institutions of the best students from the centres. These hopes were not to be realised. The fact that the population of London is a shifting one, carrying on a great variety of pursuits under widely different conditions, makes the regular transfer of students from a lower to a higher evening institution, at least in the same district, highly improbable.

and tends to make all tributary schemes inoperative. The safer assumption is that the evening student will continue in the same school, or grade of school, in which he begins. Each grade of school should therefore be able to provide its own particular type of pupil with an equipment as complete as possible, at least in those subjects which are regarded as essential, the limits of each curriculum being determined by the requirements of the students for whom it is intended.

In spite of the schemes of co-ordination which, notwithstanding their beneficial effect in other ways, have tended towards curtailing the number of students enrolling, and the increased care with which responsible masters have examined the qualifications of students for admission, there has been a fairly steady growth in the total number of students per session attending the classes in the centres. During the period from session 1904-5 to 1909-10 the number of centres decreased from 34 to 32, but the total admissions increased by nearly 20 per cent. In the same time the number of students per centre increased from 763 to 953 on the average. This growth in size has been accompanied by an increase in efficiency, if the increase of grant per student, and the increased percentage of pupils earning grant to the total number of pupils, are any indications. Statistics.

Generally speaking, there is a healthy look about the statistics of the centres, and it can only be concluded that they are supplying a felt want. Statistics, however, cannot blind us to the fact that within the centres are in need of some improvement, both in organisation and teaching. In a centre containing over 1,000 students, there may be from 50 to 150 separate classes in from 20 to 50 subjects with a staff of 30 to 70 instructors, and the responsible master has about, say, 15 hours per week in which to supervise the teaching and registration and the heavy clerical work, and to carry out the details of organisation, which in some cases has become highly complex. Under the circumstances, one cannot wonder that there is need for improvement in the teaching and organisation. There are several possible and partial solutions to the difficulty. A number of additional centres might be created and the functions of each centre might be restricted, if necessary, in order to keep its size within a certain limit. This plan is open to financial and other objections. Heads of sections acting under the authority of the responsible masters might be appointed to supervise the teaching and registration, *e.g.*, the modern languages might be under the control of a specialist in languages who might be employed half the evening in teaching and half in supervision. Since the above was first written, an accountant has been appointed in each of twelve centres to supervise the work in the classes in book-keeping and higher commercial subjects, and advise the responsible master accordingly. Granted the latter's hearty co-operation, the chances are all in favour of the success of the experiment, and it is to be hoped that it may be but the prelude to an extension of the principle. Difficulties of organisation.

A third partial solution, *i.e.*, the appointment of responsible masters to give their whole time or the greater part of it to the work of their centres, is being tried as an experiment. Four of the heads of the largest centres now only teach during half the day in day schools instead of the whole day, as formerly. The statistics available appear to indicate that the experiment has been a success, but statistics in such a matter are not of much use unless extending over a long period, for the success of individual centres is subject to considerable variability independent of the quantity and quality of the work done by the responsible masters. No one can doubt, however, that the demands made upon the ability and resource of the heads of these large institutions are such as to justify their appointment for this work and this work only.

The subjects forming the curriculum of the centres, other than science and art, may be roughly divided into four classes— Subjects taught.

(a) *Ordinary commercial*, including shorthand, bookkeeping, typewriting, arithmetic, etc.

(b) *Higher commercial*, including commercial law, economics, banking, accountancy, etc.

(c) *Foreign languages*, including French, German, Spanish, etc.

(d) *Miscellaneous subjects*, comprising literature, domestic subjects, physical exercises, technical subjects, etc.

Since the session 1905-6 the addition of new subjects to the curriculum has been small, but the unequal development of the classes named above is interesting inasmuch as it indicates that the centres are doing work of a higher kind session by session. The entries for the subjects in classes (a) and (d) have remained practically stationary, while those for classes (b) and (c) have very considerably increased. The development of higher commercial work and of foreign languages is probably indicative of two important tendencies. In the first place, the average commercial student no longer contents himself with the qualification for work of a merely mechanical character, but endeavours to get an intelligent grasp of the underlying principles of commerce; and, secondly, the clerks, from whom the better positions in the commercial world are filled, are taking advantage more and more of the educational facilities supplied by the centres. Prejudice from the middle classes in this direction against the Council's schools appears to be decreasing. It is satisfactory to find that the demand for instruction in English and English literature is decidedly on the up grade; history and civics, however, appear to be in very small request. It might be as well to institute special courses in these subjects on similar lines and conditions to those for English literature and to ensure that the teaching should be as vivid as possible, and free from the "dryness" so frequently associated with these studies.

Organised
courses.

Need for
speciali-
sation.

Relation of
the centre
to the day
school.

The most important development of the centres in the matter of curriculum has been the institution of organised courses. Some five or six sessions ago such courses were instituted by a few responsible masters on their own initiative, in order to supply well-thought-out schemes of study extending over a period of years, usually three, in place of the unbalanced choice of subjects made by immature students. Subsequently the whole of the centres were induced to provide courses, and in the session 1909-10 all pupils under 17 years of age were compelled to take these courses, apart from a few exempted by reason of special circumstances. In the session 1910-11 the age limit was raised to 18. In those centres where the courses are firmly established, there appears to be a greater consistency of attendance among course than among non-course students. In this connection it is interesting to note that for the session 1908-9, when five centres held courses, only 12 per cent. of those taking such courses failed to qualify for Government grant, while in the case of the entries for individual subjects 35 per cent. of such entries failed to qualify for grant. The course students on the average attended for 76 hours per student during the session, the others attended for 61 hours per student. While the theoretical superiority of the course system for young people is beyond doubt, its actual practical success at the present stage depends very largely upon the initiative and energy, the knowledge and imagination of the responsible master. The institution of organised courses is the forerunner of proper specialisation, because the only good basis upon which a course can be built up must be the educational needs of a certain class of worker. There are as many varieties of clerks as there are of mechanics. In our technical institutes we do not offer a huge array of technical subjects to the artisan that he may pick and choose. We offer him, if he is a carpenter, a carpenter's course; if a bricklayer, a bricklayer's course, and so on. There may be a preliminary course common to several trades, but afterwards there is the proper specialisation. The analogy can be applied to the centres. Under ideal conditions there might be preliminary courses for junior clerks, but afterwards there would be courses for accounting clerks, for warehouse and invoice clerks, for bank clerks, for insurance clerks, for municipal clerks, for civil servants, for railway clerks, and others. Our curricula have, until recently, presented an *olla podrida* of subjects, related only in the loosest fashion, the variety of which, though attractive, has been fraught with danger to all but the most discriminating students. The average pupil is only too likely to find his choice an unwise one and his capacity for work over-estimated. This latitude of choice accounts in large measure for the shrinkage of numbers which becomes apparent as the session advances. There is no one remedy for the waste of effort involved, and under no system will it be entirely eliminated; but, ignoring for the present the possibility of gaining much more help from the influence of employers and parents, there are several ways by which greater efficiency may be gained. Perhaps the most important is the development of the course system, each course providing for the needs of a particular class of clerks. It is, however, not desirable that the smaller centres should jeopardise their usefulness by attempting a degree of specialisation possible only at the larger centres. The curricula could well spare a number of the subjects now included. Only those should be retained which either form necessary parts of a commercial education, or which, as in the case of civics, literature and physical exercises, are desirable in every person's equipment. Again the present system of fees needs revision. With the tendencies already noted to raise the standard of education in the centres and to attract a better class of student, the fee of 2s. 6d. which includes admission to any number of classes appears very small. It may be found necessary to raise this fee, and in any case to charge a fee for one subject or one course. The effect of this revision should be to check the tendency previously mentioned to a fatally ambitious choice of subjects.

It is probable that a large proportion of boys, at any rate, who leave school, other than those who enter the blind alleys of employment, secure some kind of clerical work, and it is therefore obvious that some degree of co-ordination is desirable between day school and evening centre. Very little has been done in this direction, and the practical difficulty seems to be the wide difference in the aims and curricula of the two classes of schools. In the former, the subjects of instruction are general and such as to preserve a proper educational balance; in the latter, they are specialised and mainly utilitarian. With the introduction of the central elementary school and the secondary school with commercial bias, it may be found possible to attempt practical co-ordination between the centres and these schools. Closer association between the heads of these schools seems desirable in order to accomplish this. Where there is a central school held in the same building as the evening centre, there should not be much difficulty in arranging special courses in the centre for those leaving day school, and, in the future, it may be desirable in starting a new centre or transferring the place of meeting of one already existing, to consider its proximity to the local central or secondary commercial school.

London is the greatest commercial city of the world, and its importance as an exchange and distributing centre dwarfs its significance as a manufacturing town. The kind of education bearing upon its commerce should receive at least as much attention as that bestowed upon technical education, and therein it differs entirely from a northern manufacturing town. These commercial centres, at present, play the most important part in the provision of commercial education, and it is to their development and future that we must look to help to secure such a system of commercial education in London as may be worthy of the supreme importance of its commerce.

W. J. CHALK.

3. The ordinary evening schools.

(Memorandum by Mr. S. E. Bray, M.A., district inspector of schools.)

Although there are now 93 fewer evening schools in existence than during the session 1904-5, the aggregate number of students has not correspondingly diminished. Indeed, if all the classes held on the premises of various clubs and societies for which the Council supplies the teachers were included in the statistical survey, it would be found that the number of students under instruction had not fallen away to the extent that the official returns for the Council's schools seem to indicate. There are signs that relatively large numbers of young men and women are becoming more fully alive than formerly to the influence of further education, and this becomes increasingly evident when the improved attendance of the classes is realised. No doubt the complexities of life, growing year by year, are making greater demands upon the individual, and the rising generation is slowly awakening to the requirements of the times—is half-consciously craving for something it cannot define.

The ordinary evening schools. (Memorandum by Mr. Bray.) The schools in 1904 and 1911.

The evening schools, however, remain much as they were seven or eight years ago, except for a few administrative changes and some fairly successful attempts to limit the scope of the instruction in, and to give a more definite aim to, certain evening schools favourably situated for this purpose. The changes on the administrative side include (1) closure of the schools at Easter; (2) the introduction of a new staffing scheme; and (3) the imposition of fees for students under 16 years of age. There have been no marked changes either in methods or organisation, but there is generally an upward tendency, the chief aim being preparation for commercial life. The schools appear to have been struggling for a few years to secure a firm foundation on which to build. The present time might be described as one of transition, not without good promise. There are indications of activities that will bring the classes into closer relationship with external demands. The organisation of classes for Post Office lads is an example of this. Co-operation with the Woolwich Arsenal authorities is another instance; and many others might be cited. Similarly the special needs of the various organisations for boys' brigades, boy scouts and girl guides are being met wherever possible.

In considering the position of the evening schools at the present time, account must be taken of external agencies designed to give some practical training to youths in their leisure hours. Within the last few years, organisations like those just named have sprung up and developed so strongly that they carry with them the impress and attributes of permanent institutions. These organisations met an inarticulate public demand, and they have prospered because of their good works. It is not by any means a subject for regret that these organisations have captured many lads and girls who would otherwise be in attendance at the evening schools; they have probably also exercised an educative control over thousands who would not have found their way through the evening school portals.

Their relation to various social agencies.

But it must be borne in mind that when so many beneficent agencies are at work making a special appeal to youth's instinctive demand for action, it could hardly be expected, ere the early fruits of these activities have matured, that the evening school with its less attractive and more arduous courses of instruction, would grow much in numerical strength. Indeed, the past decade may be described as the social decade, as one in which almost every institution designed for the spiritual amelioration of the people, which had not hitherto taken steps in this direction, developed a social wing, framed often with the view of appealing especially to the young. This is all to the good. The road to the Council's evening schools, and kindred institutions, is being paved by these laudable efforts.

But there are other institutions of a less educative, but of a more attractive nature, that have militated against the success of the evening schools, viz., picture theatres. These have, for at least a time, taken hold of the imagination of the people, and both young and old, apparently, cannot resist the charms of the living canvas.

It should, however, be remembered that, while juvenile clubs, and the other organisations already referred to, have a continuous existence and therefore presumably exercise a continuous influence for good over their members, the evening schools, as a whole, close at Easter and do not reopen till the closing days of the following September. This break in the link of intercourse between the students and the schools, is, perhaps, the greatest defect in the Council's evening school organisation. There is no continuity in evening school life; the time-gap is too great, and hence it is that a practically new school is opened every year in the same building. The *esprit de corps* of one session is not necessarily the same in the following session; it may even be vastly different. This, however, is not the place to indicate remedies. It is sufficient to point out the defect, the resulting disadvantages being almost obvious.

At present the greatest need of the evening schools is stability of attendance. In the first few weeks of the session everything goes fairly happily in this respect, but shortly after this the falling off in the attendance begins, and assumes disquieting proportions as Christmas approaches. In no school, taking the session as a whole, can the attendance be regarded as satisfactory. Some schools, of course, have a more regular attendance than others; but, speaking generally, the larger the school the better, as a rule, is the attendance. This is probably the natural result of popularity, of management on a broadly accepted

Question of attendance.

basis, in which strenuous work on the part of the staff and many students is an important factor. It is the smaller schools—and these form the great majority—that suffer most from the ill-effects of intermittent and capricious attendance and early withdrawals, that characterise more or less all the evening classes; for in these schools many of the classes are not large when first formed, and can ill afford, in the face of the Council's closure rules, either to lose students by withdrawals, or to have the attendance depleted by irregularity. Hence it is that some classes become extinct perhaps early in the session, or, at any rate, before its close, while other classes lead such a precarious existence that it excludes the possibility of the best work being accomplished either by the teachers or the students. Some of this irregularity is doubtless due to circumstances over which the students have no control, but most of it is due to the students' own shortcomings. The work, perhaps, does not interest them sufficiently and they fall away. It is certain, however, that there would be less of this kind of absenteeism if the evening schools were not built so largely on the lines of the day schools, whose traditions dominate evening class methods and, too often, also the scope of the subjects of instruction.

It is exceptional, too, for an employer of labour to take an active interest in his employees' evening education. Where co-operation between the employer and the school exists, it has been attended with beneficial results.

Again, evening education is heavily hampered by the conditions under which it is necessarily carried on. The great majority of the students attend the schools after an ordinary day's labour; it is the same with the teachers. The schools, too, are in session during the most inclement period of the year. There are, further, the rush that is incidental to the comparatively short duration of an evening's meeting; the absence of continuity in the life of the school, especially felt, but not regretted, by the teachers—one day on an average separating each meeting—and the unsuitability of the desks for a large number of the students. This is an array of adverse conditions which is not really paralleled in any other branch of the Council's educational work. And yet, except for occasional art and some domestic economy scholarships (the latter for the training of domestic servants) and also the technological scholarships enabling capable students of the ordinary schools to pass to the polytechnics, there is no system of this class of awards in connection with the ordinary schools for the encouragement of commercial education. There is no part of London's educational system which needs so much encouragement of this kind as the ordinary evening schools, especially if such awards were based on organised courses. The other parts of the Council's educational system appear to be well supplied in this respect.

Types of schools.

The ordinary evening schools may be roughly divided into two classes, namely—

Types of schools.

(i.) Those with a commercial bias; these constitute the great majority and are mostly mixed schools.

(ii.) Those with an industrial or domestic bias, in which the sexes are generally taught separately.

(i.) Schools with a commercial bias.

Of class (i.) there are about 40 large schools where the work is of a comparatively advanced character. They are gradually developing into commercial centres. Indeed, in some respects the standard of work and the attendance of the students are on a level with those of the centres. They, however, differ from the centres in many respects—in the status of the teachers, in the range of subjects of instruction, in the fees that are charged, etc., and especially in the teaching of domestic subjects (dressmaking, millinery and ambulance being included under this head) and perhaps also the subjects involved in preliminary technical or trades courses. In some respects these schools are wider in their scope than the centres, which, practically, devote their whole attention to commercial education.

The "course system."

Generally, it is only in these large schools where the "course system" has been found to be practicable and where it has met with success—in many cases a qualified success. However, that the principle of the "course system" is sound there can be no doubt, and, therefore, attempts at the consolidation of the subject-matter of instruction should continue. It is obvious, apart from the value of the system for purely training purposes, that an organised and related mass of knowledge is of more value than disjointed or fragmentary facts, or proficiency in one branch of a group of cognate subjects. The system would, too, if in general operation, simplify the initial classification of students, better adjust the instruction to their ultimate requirements, and make the path of progress easier by fitting the students, in each successive session, into the organised courses, designed to cover two, three or more years. A further advantage is that the student is able to see the goal of his studies within the school, and the steps leading up to it. His career as a student is marked out for him, and he will be the more likely, with this vision before him, to brace himself for achievement. The general adoption of organised courses, too, would prove the best possible check to the desultory and often aimless studies of those students who, as a rule, are so fitful and irregular in their attendance. The time, however, is not ripe for the general adoption of this system in the metropolitan area; it is necessary to temporise. Administrative pressure and official sanctions will do much, in a few years, to make the "courses" generally acceptable.

It will be remembered that the Council some time ago made the "course system" obligatory on all students below 18 years of age attending commercial centres, unless special reasons could be advanced to the contrary. This permissive exception has been largely embraced. Most responsible teachers have made an earnest attempt to apply the spirit of this regulation to the ordinary schools: but, notwithstanding persistent efforts in this direction, the courses have not been a general success, partially because the teachers—they are still obsessed with the idea of grants—anxious to conform to the Board of Education's regulations on the subject, have thought it necessary, in most instances, to extend each course over the three evenings on which most of the schools meet. Experience shows that the majority of the students will not attend on three evenings a week. The result is inevitable. Some attempts have, however, been made to group two subjects instead of three, such as shorthand and English composition—bookkeeping and commercial arithmetic—and though such limited grouping is not especially favoured by the Board of Education's regulations, it has achieved varying degrees of success according to circumstances. The conditions must be very favourable to enable a school successfully to formulate a course that necessitates the attendance of students on three evenings a week. This, however, has been accomplished in some schools.

But the Board's regulations on the "course system," as they now stand, are not calculated to encourage the rapid growth of that system in London, desirable as it is, though they are doubtless suitable for the manufacturing towns in the North of England. It is clear that some modifications in the Board's regulations, in the direction of elasticity rather than of radical change, are necessary if organised courses are to become a general success in the London evening schools.

With regard to the schools with an industrial or domestic bias, they are, as a rule, situated in poor neighbourhoods. Lads engaged in unskilled labour and factory girls form the bulk of the students. Some idea of the work which these schools set themselves to accomplish will be gathered from the list of subjects of instruction combined with a few explanatory notes. Most of the schools meet on three evenings a week, a few on four, for two hours each evening.

The following are the subjects of instruction in two typical schools (for males) with an industrial bias—

- A. Preliminary trade course consisting of practical woodwork, workshop drawing and calculations and English—two evenings.
 Woodwork (double class)—two evenings.
 Woodcarving—two evenings.
 Repoussé—two evenings.
 Boot repairing—one evening.
 Grouped subjects—Arithmetic, writing, geography and English composition—three evenings.
 First aid—one evening.
 Gymnastics—three evenings.
 Swimming and life-saving (after Easter).
- B. Grouped course—Arithmetic, reading and writing—three evenings.
 Elementary drawing and brushwork—two evenings.
 English—one evening.
 Geography—Lantern lecture—one evening.
 Gymnastics—three evenings.
 Grouped course—Reading, writing and composition—three evenings.
 Repoussé—two evenings.
 Woodwork—three evenings.
 Workshop drawing and calculations—two evenings.
 Swimming and life-saving (after Easter).

The following illustrates the "preparatory trade course" in operation at this school—

- Practical woodwork—one evening.
- Workshop drawing and calculations—one evening.
- English—one evening.

(The Council offers 180 scholarships, value £3, tenable at polytechnics to students attending technological courses in evening schools. The syllabus of the examination is included in the preparatory trades course of this school.)

For a typical school with a domestic bias (females) the subjects are—

- | | |
|-------------------------------------|-------------------------------------|
| (a) Senior classes— | (b) Junior classes— |
| Dress-cutting—two evenings. | Dress-cutting—two evenings. |
| Millinery—one evening. | Millinery—one evening. |
| Needlework—one evening. | Needlework—one evening. |
| Reading and recitation—one evening. | Reading and recitation—one evening. |
| Singing—one evening. | Singing—one evening. |
| Home nursing—one evening. | Cookery—two evenings. |
| Infant care—one evening. | Laundry—two evenings. |
| First aid—one evening. | Gymnastics—one evening. |
| Cookery—two evenings. | |
| Laundry—two evenings. | |
| Gymnastics—one evening. | |

(ii.) Schools with an industrial or domestic bias.

In the dress-cutting classes, in addition to the making of new garments, attention is paid to the alteration and adaptation of partly-worn garments.

Whilst the attendance at these types of school cannot be regarded as satisfactory, it is found that the essentially practical subjects arouse the more interest and secure the more consistent attendance. It is the minority, here as elsewhere in the evening schools, that prove their grit and form the backbone of the institution. Not a few female students show an affectionate regard for their school: they realise the good that has been done—the light that has been brought into their lives.

The "course system" is, as a rule, a failure in these schools, probably for the reason already assigned. Too much is attempted in this connection, considering the arduous labour which most of the students have to perform during the day and which, at certain periods of the year, is prolonged, to meet the pressure of business.

Most of these schools are doubtless doing valuable work. The struggle, however, is always uphill, and the progress is not always exactly measurable. But humanising work—the best work—can never be exactly gauged.

Curriculum.

Curricula.

It is not necessary to set out here the names and grades of subjects of instruction taught in the evening schools. The subjects would number about 50 for the whole area. It is, however, interesting to note what subjects of instruction are in greatest demand on admission, and which claim the largest share of attention throughout the session. For the fee-paying schools, *i.e.*, those situated in good or fairly good neighbourhoods, the order of popularity and demand is as follows—

- | | |
|------------------|--------------------------------------|
| (1) Shorthand; | (9) Gymnastics (including swimming); |
| (2) Bookkeeping; | (10) English language; |
| (3) Dressmaking; | (11) Cookery; |
| (4) Arithmetic; | (12) English composition, millinery, |
| (5) Vocal music; | reading and writing combined, |
| (6) Woodwork; | commercial correspondence, |
| (7) French; | geography, and home nursing. |
| (8) First aid; | |

In the case of the free schools, the order of demand and appreciation is very different—

- | | |
|------------------|---------------------------------------|
| (1) Gymnastics; | (8) Reading and writing combined; |
| (2) Dressmaking; | (9) Cookery; |
| (3) 3 R's; | (10) Arithmetic; |
| (4) Woodwork; | (11) Needlework, swimming, millinery, |
| (5) Drawing; | geography, first-aid, book- |
| (6) Vocal music; | keeping. |
| (7) Shorthand; | |

Co-ordination.

Co-ordination.

The principle of co-ordination is gradually becoming operative throughout the Council's educational system. In some districts schemes have already been devised and adopted which, on the whole, have worked fairly satisfactorily. Some adjustments have perhaps to be made, from time to time, to meet exceptional circumstances or unexpected changes in the neighbourhood. It is a pleasure to note in connection with this question—which might easily be made a vexatious one—that all the parties concerned—or nearly all—show an admirable spirit in the search for a satisfactory solution of the problem.

The members of the many conferences convened to deal with this matter, representing, as they do, the various types of institution concerned with evening education under the Council's authority, have necessarily confined their attention to the larger issues involved, and a working basis has usually been found, acceptable to all parties. These larger issues are concerned with the correlation of subjects of instruction between the various institutions, and also with the drafting of suitable students from one institution to others of higher rank: and in this connection it must always be borne in mind that only the exceptionally good student, and not the ordinary one, can be successfully made the subject of the co-ordinating principle. There are, however, still some districts where co-ordination has not yet become fully operative; but in these cases the machinery for settlement has been set up and is working towards the same definite end. There is another important phase of this question of co-ordination in which the Council's inspectors play, or should play, an active part. It is obvious that ordinary evening schools within easy walking distance of one another should not be allowed to enter into competition in teaching certain subjects for which there is no great demand. Steps, therefore, have to be taken annually when the curricula of the schools are submitted for criticism and approval, to ensure that adequate but not excessive provision is made for the teaching of certain subjects in a given area, and to eliminate, as far as practicable, the possibility of the competitive element between school and school in close proximity, when such competition is calculated to render the efforts of both institutions comparatively ineffective in certain branches of their work. The organisation of the classes in this respect is by no means

perfect, but it is improving year by year. The administrative network of schools and institutes engaged in evening education should be an organic whole, wherein every part, even the humblest in function, might benefit by the spirit and tone of the whole body.

Students' unions, etc.

Most of the schools offer opportunities for social intercourse among the students, some without any set organisation for the purpose arranging an occasional social evening, while others meet regularly once a month, during the session, usually on Saturday evenings. A considerable number of responsible teachers, however, who perhaps have several hundreds of students under their charge, realise the need for a settled organisation for social purposes, in which the students take an active part. Representative students are elected, on a democratic basis, to serve on committees, and a complete organisation for dealing with all questions of social intercourse is thus set up, the responsible teacher, and probably one or two other members of the staff, exercising a directive influence. An organisation of this kind is generally called the "Students' Union," from which emerges various kinds of clubs according to the particular bias of a student, such as dramatic, rambling, cycling and tennis clubs. The union, however, not only makes provision for sectional tastes, but also for the entertainment of the students as a whole, as the following first half of a sessional programme will show—

October 5th—Social evening.

October 10th—Lantern lecture on "Canada."

October 26th—Concert.

November 8th—Social evening.

November 14th—Lantern lecture on "South Australia."

November 23rd—Dramatic entertainment.

December 5th—Lecture on "Classical Poetry."

December 14th—Social evening.

Typewriting.

The system of centre instruction in this subject is not a success in the sense of the design that led to its creation. While the machines at the centres are kept in use, mainly by the students of the evening school where the centre is located, the contributory schools have, as a rule, failed to supply their students for instruction; and hence machines that were intended to meet the wants of several schools in a given area are utilised by the students attending one or two schools. Distance between the contributory schools and the centre may be one of the operating causes of this failure, but as there are many cases in which this distance can be covered in a few minutes' walk and still no students attend, this can hardly be accepted as the chief or real cause.

The chief cause is, no doubt, as follows—A large evening school meeting in a good building with capacious halls is usually selected as a centre for typewriting. The neighbouring contributory schools are not probably so happily situated, or so well housed, or not so popular, as the school that is used as a centre. Is it surprising—human nature being what it is—that responsible teachers, anxious to keep a firm hold on all the students they have, should decline to use pressure in order to induce students qualified to attend the centre, to go there? It is not a question of suspicion that professional etiquette might fail. It is the glamour of the popular school, of the building with the capacious halls, whose possible influence is the object of suspicion. Meanwhile, the students of the school where the machines are located either get a monopoly of the machines or have the lion's share in their use.

In conclusion it is desirable to point out that a strong utilitarian spirit dominates the schools. The aesthetic side and the humanities come in, by courtesy, for some relatively slight recognition. It should be noted, too, that the students generally show more self-respect and exercise more self-control than they did a few years ago. This is perhaps one of the highest expressions of the value of the education they have received, and is a silent tribute to the work accomplished by the teachers both in day and evening school.

S. E. BRAY.

4. Managers.

Under the late authority, there were, as a rule, separate bodies of local managers for the evening schools, and these were continued until January, 1905. From that date, however, the Council decided that the managers appointed for the day schools should act also for the evening schools, with the exception of the commercial and science and art centres. As is well known, these managers are appointed, under the Act of 1903, as to two-thirds by the borough council, and as to one-third by the local education authority.

The reasons for the arrangement adopted by the Council were that it was frequently adopted by the late authority, and that it possessed several advantages, chief among which were closer co-operation and co-ordination between the day and evening schools, less tendency to friction between the teaching staffs of the schools, and greater influence on the part of the managers themselves in endeavouring to secure the attendance at evening schools of the children leaving the day schools.

Students' unions.

Type-writing.

Conclusion.

Managers. Changes introduced by the Council.

As just stated, the commercial and science and art centres were not included in this arrangement. These institutions were managed directly by the late authority, though in a few cases local managers were appointed, but without the power of nominating teachers. The Council decided to make no change.

The local management of the schools for the deaf, which until 1905 had been conducted without local managers, was in the early part of that year placed in the hands of the managers of day schools for the deaf. There still remained the question of the local managers for the few evening schools which were conducted in non-provided buildings, and the Council decided, in October, 1905, that these should be placed under the local managers of the schools in which the classes were held.

The evening schools need more local help of the kind that can be got from managers of business houses or works, foremen or forewomen and other persons who could assist at the social gatherings.

5. *Books and Apparatus.*

Books
and appa-
tus.

Books, apparatus and other school material are supplied from the Council's central stores on the requisition of the responsible teacher. For this purpose requisition lists are issued. These lists contain particulars of the books and material which the Council considers to be best fitted for the needs of the schools. The lists are revised annually. Applications for permission to use books and apparatus which are not upon the approved lists are considered on their merits. The total annual cost of supplying books, apparatus and stationery to the evening schools and centres is approximately £5,500.

This small annual expenditure is to be accounted for by the facts that the day school apparatus and materials are used wherever practicable, that students are encouraged to purchase their own text books, and that students are allowed to purchase articles made by them at a price equivalent to the cost of the material used. The receipts from sales to students amount to about £1,300 a year.

The circulating system is applied to evening schools as far as possible. A collection of reading books is available, and sets of standard works are supplied on loan for collective reading.

The Council's lantern slide scheme is fully utilised. A large loan collection of lantern slides is available. These slides have been specially selected for their suitability for the illustration of lectures on the subjects taught in the schools maintained by the Council, and the collection is kept up to date with the assistance of a conference consisting of officers and teachers who are experts in particular subjects, and who are practical photographers. Classified catalogues of the slides are supplied to responsible teachers, who select the slides required for their lectures. The slides are delivered to the schools on the day upon which they are required, and are collected the following day. About 73,000 lantern slides were issued to evening schools during the last session.

A circulating library of instrumental music suitable for performance by orchestral classes has also been formed.

The special apparatus required for the lectures on first aid, home nursing, health, and infant care is transferred from school to school as required.

There are 57 centres for instruction in typewriting. In these centres there are 630 machines. The machines allotted to each centre are of various types, and students are therefore enabled to obtain a general knowledge of the subject.

Prizes are awarded to students in evening schools upon the results of approved examinations. The approximate annual expenditure upon prizes is £700.

The annual cost per head for books, apparatus, and consumable material, supplied specially to evening schools, is 10½d.

6. *Advertising.*

Advertis-
ing.

Attendance at evening schools and institutions in London being voluntary, it is very important that the Council should bring before the notice of young men and young women the advantages that are offered to them in the various evening institutions, so that they may be induced to take advantage of them. Much can be done in this direction by the co-operation of the head masters and head mistresses of the elementary or other schools from which the students are drawn, and by the staff of the various evening institutions that provide the instruction. Wherever such personal influence can be exerted, it is no doubt the most effective method of recruiting students. But it is not possible to rely on this method alone. Unfortunately, in many cases, boys and girls lose touch with their day schools after they have ceased attendance, and a period of some years often intervenes before they come to realise the importance of continuing their education, if indeed they ever come to realise it at all.

It is part of the Council's duty, therefore, to try to make known by public advertisement the opportunities which it offers to those whom it has previously educated in the day schools to continue their education in the evening. Such advertising, to be effective, must be carried out in various ways. One class of student will be appealed to by one means, another class of student by another. Experience has shown, that the more the Council can secure variety in its methods of announcement, the more effective is its appeal likely to prove.

The general scheme of advertising which has been adopted by the Council during the past few years may be stated as follows—

Details
of the
Council's
scheme.

(1) The exhibition of a notice on the whole straight sides of electric tramcars during September, and transparent tablets fixed inside the cars for the whole of the session.

(2) The issue of subject posters, 60 in. by 40 in., exhibited on railway stations, various properties of the Council, such as parks, fire-stations, sites, etc.

(3) The exhibition of bills outside provided and non-provided schools, announcing the date of the opening of the classes.

(4) The issue of district pamphlets giving particulars of institutions of all the various polytechnics, technical institutes, schools of art, commercial and science centres, evening schools and trade schools.

(5) The free issue by certain of the underground electric railway companies and the South-Eastern and Chatham Railway Company of 150,000 pocket cards, showing the institutions on the route of the respective railways, the subjects taught, etc., and the nearest stations at which to alight. Similar arrangements have been made with the General Motor Omnibus Company.

(6) The issue of individual school posters.

(7) The issue of card bills and double-demy posters for exhibition in lifts of electric railways, in workshops, factories, offices, and other public places.

(8) The issue of prospectuses and handbills for each particular institution and evening school respectively.

(9) The advertisement of technical institutes in trade journals, and art schools in art journals, and of both in the local press.

(10) The issue of trade handbills for circulation among members of trade unions and federations.

(11) The issue of literature posters, syllabuses and handbills.

(12) The issue of special handbills advertising specific classes.

In all some 2½ million prospectuses, pamphlets, handbills, etc., are distributed each year.

As many of the Council's technical institutes and schools of art are situated away from the main roads, arrangements are now in progress for small lighted signs, indicating the position of the schools, to be fixed to lamp standards in the main roads. In addition to the above arrangements, the ministers of religion and superintendents of Sunday-schools have from time to time strongly urged from the pulpits and platforms the advisability of young men and women continuing their studies at the evening schools. The Press, moreover, invariably give favourable notice of the opening of the evening schools. Teachers also, in some cases, interview the employers of labour, with the idea of gaining their co-operation in persuading their employees to attend the schools.

The above account of the Council's system of advertising the evening institutions shows that no efforts are spared to get into touch with the different kinds of students for whose benefit the classes are provided. No doubt, in an area so vast as London, there must be many who remain ignorant of this branch of the Council's work, but inquiries that have been made from time to time of individual students have shown that the system of advertising is effective, and there can be little doubt that the amount spent upon it, viz., £2,500, or 1.05 per cent. of the total expenditure on evening education, is well expended.

7. Enrolment.

In regard to the actual work of the enrolment of students, an important change was made in 1905-6. Prior to that session, it was the practice to set aside for the enrolment of students only one evening in the week before the opening of the schools in September, and, generally, to pay only one-half of the staff to assist the responsible teacher in the work. This arrangement was barely adequate for the mere enrolment of names, taking of fees, etc., and quite insufficient for the important purpose of advising the students in the choice of subjects. Without guidance many students have little notion of systematic study, and attempt too many subjects; others choose classes for which they are totally unfitted through lack of preparatory knowledge, and others, again, neglect subjects which would be helpful to them in the study of their special subjects. To obviate this waste of the pupils' efforts, and to enable the staff to advise the students, it is necessary to ascertain, amongst other particulars, the aims of the students, the occupations they follow or seek to follow, their ability, leisure time for study, and the extent of their previous education. Such inquiries must of necessity involve considerable time in personal interviews, but they are of real benefit to teacher and pupil alike. In order to allow these inquiries to be made and guidance to be offered during the week before the schools re-opened, the whole staff were paid for attendance on the first enrolment evening and half the staff on the succeeding evenings. The evenings set apart for enrolment are the same as those in which the school is open each week for the instruction of students.

Enrol-
ment.

In all the detailed notices announcing the opening of the schools, the attention of both prospective and old students is specially directed to these new arrangements, and they are urged to enrol themselves during the week set aside for the purpose, in order that the instruction in the following week might begin without interruption caused by new admissions. These new arrangements have worked very satisfactorily, and have resulted in a much larger number of students enrolling themselves before the beginning of the session.

The enrol-
ment week.

But much more requires to be done in this respect. The advisory functions of many a responsible master and his staff are not sufficiently effective; there is still too much choice of unsuitable subjects, still too much of the successful demand to undertake more than can reasonably be accomplished, and still too little reference of the student to a more suitable school. So before long comes the inevitable disappointment, disheartenment and failure.

8. Attendance.

Attendance
at evening
institutions.

As the character of the attendance is a fairly good measure of the character (quantity and quality) of the work done in evening schools, it is necessary to give some close consideration to this subject.

1. Total
enrolment.

1. In the first place it is important to gather some general view of the total enrolment at all kinds of evening institutions and of the share in the total borne by the Council's evening schools. The following approximate figures will make the position clear—

There were enrolled in 1910-11—

(i.) In the polytechnics	...	...	...	25,000 evening students
(ii.) In maintained technical institutes and schools of art	...	...	...	10,000
(iii.) In commercial centres	...	...	...	30,000
(iv.) In ordinary evening schools...	..	...	...	100,000
(v.) In other institutions—University, King's, East London College and the School of Economics; technical colleges such as Finsbury, important institutions like the Working Men's College, Morley College, Y.M.C.A., settlements, clubs and other organizations	...	...	...	30,000 (estimated)
				195,000 (approximate enrolment)

It is estimated that the proportion of boys and men to women and girls is as 3 to 2.

The highest recorded enrolment of students at (iii.) and (iv.) (see the diagram Appendix A facing page 104) is 156,604 for 1905-6. These made a total of 6,042,046 student hours. In 1910-11 the enrolment was only 128,464, and the number of student hours 5,871,315. The decrease is, however, not so real as it looks. Since 1904 the Council has established a number of special courses for teachers, and during 1910-11 these courses were attended by a large number of teachers, who made about 15,000 class entries—say 7,500 to 10,000 teachers. The numbers attending these classes are not included in the evening school enrolment, although prior to the establishment of these special classes teachers attended the evening schools in very much larger numbers than they do to-day. Also, it is assumed that some 12,000 students for whom teaching is now provided in clubs (as compared with 6,000 in 1905-6) account for a considerable part of the decrease. It is estimated that the teachers' classes and the clubs together account for 420,000 student hours. If, therefore, this number were added to the total for 1910-11, the number of student hours for that year would amount to 6,290,000.

2. Analysis
of enrolment
figures.

2. It will be necessary for a moment or two to turn to the diagram Appendix C (facing page 106). The curve A A shows that a considerable enrolment of apparently new students proceeds week by week continuously from the beginning of the session in September to the end of February with but one interruption, viz., that caused by the Christmas holidays. Curve E E shows that immediately after the opening of the session the total average attendance per hour begins to fall; and that, in spite of the weekly accessions of apparently new students, it continues to fall almost without interruption right to the end of the session. At the beginning of April the total enrolment is 60 per cent. above that at the end of September; the total average attendance within the same limits has fallen by 42 per cent.

The character of the curves immediately suggests two important questions. First, does increased enrolment mean an addition of new students? No doubt it does. There is evidence, however, that it also means transfers from one school to another. The subject has not been investigated and it is therefore not possible to give definite measure to each of these factors. It is estimated, however, that the second factor (transfer) is far from inconsiderable.

The second and much more important question is that of the general effect on the character of the classes and on the possibilities of class teaching. During the last session (1911-12) out of 13,500 classes which were opened 2,600 had to be closed because the average attendance for three weeks had fallen below the closing number. (This number varies from 6 to 12 according to the subject.) The students remaining at the time of closure were distributed among other existing classes or had to leave. Five hundred authorised classes were closed before the session was one month old. Between September, 1911, and Easter, 1912, 160 classes in bookkeeping and 180 classes in shorthand had to be closed owing to low attendance.

Again, in 1907-8 (a normal year), of 125,000 students enrolled 43,000 individuals made less than 14 hours' attendance in any subject.

The following table shows how large a proportion of London students failed to make 14 hours' attendance in the six most popular subjects in 1909-10—

	Number enrolled.	Number who made less than 14 hours' attendance.	Percentage who made less than 14 hours.
Bookkeeping	17,156	7,972	46·4
Dressmaking	14,901	5,343	41·4
French	12,169	6,908	48·7
Gymnastics	18,448	9,618	52·1
Shorthand... ..	32,815	12,948	39·5
Woodwork	9,163	4,361	47·6
Total entries	104,652	47,150	45·8

3. It is, of course, not possible to secure regularity of attendance in evening schools at all comparable with that which obtains in public elementary day schools. It has always to be borne in mind that evening school attendance is voluntary; that in most cases it has to be made after the fatigue of a day's work; that as a rule the ordinary conditions of labour in London necessitate employees working to a late hour and at certain periods of the year the employees in many trades are called upon to work overtime, or to work away from home; that the student's home, his place of business, and the evening school are often far apart; and that the evening schools are open during that part of the year in which the worst weather is experienced. Add to these causes ill-health, the ups and downs of employment, the attractions and distractions of London, and it will be seen that, even if the organisation of the schools were beyond criticism, and the teaching thoroughly efficient and attractive, the evening schools would have very great difficulties to contend with in order to secure reasonably good attendance. It is only fair to add that London enrolls in its evening institutions a larger proportion of the population than any other large city in England, and that the regulations defining a registered attendance (which are the attendances referred to) are strict and strictly carried out by the staff. A considerable proportion of effective students miss the first marking owing to late business hours. All these factors tend to make the tale of ineffectives look larger than it may in reality be.

3. Discrepancy between the attendance and the enrolment figures.

Importance of the question.

But an exhaustive examination of the subject has shown that, when all due allowances are made, the attendance must be regarded as very unsatisfactory; and that this defect of the evening schools system must in large measure be attributed to the want of persistence on the part of the students, and to their abuse of regulations which are not only liberal in themselves, but are usually interpreted with much sympathy towards their likings and failings. Of the 130,000 enrolments in the evening schools it is advisable to regard only some 90,000 as representing effective and serious students.

This is a most serious matter. Nearly one-third of the students—40,000 out of 130,000—are ineffective. The students themselves develop the bad habit of non-persistence. Their enrolment and subsequent withdrawal destroys classes wholesale, rendering useless the efforts and organisation provided for their instruction and spreading want of confidence among the staff as to the value of all or any efforts. Further, the class registers show that, even in the case of many classes which survive, the personnel of the classes changes so much that class teaching becomes impossible and that good students suffer and become indifferent.

To most responsible teachers, and, to a less extent, to many assistants, evening class work represents one continuous struggle against poor attendance during the greater part of the session; and thus energies which might otherwise be directed into purely educational channels are partly dissipated in the struggle with idle or indifferent students. It is a struggle to preserve the attendance at a satisfactory level, and thus keep the classes alive. It is this continuously anxious effort that makes evening school work so arduous and so dispiriting. It is the professional teacher who is best able, as a rule, to cope with this phase of, and other difficulties in, evening education; and hence responsible masters and mistresses are almost invariably drawn from the professional ranks.

The strain of anxiety as to falling attendance has driven many responsible teachers and assistants to spend too much time and care in the mere whipping-up of laggard students, who, possibly under better class conditions, might need less incentive to good attendance and mental activity. It is quite possible that less solicitude for mere attendance and more optimism as to programme of work, presentation of subjects, and general class management, might secure better attendance as a by-product. But the subject of poor attendance is an old and very difficult one, and there is a strong body of opinion that nothing short of compulsion will successfully cope with the 40,000 ineffectives.

4. But there is some compensation in one very good feature, viz., the character of the age limits. The school records permit of these being expressed in three groups only. Between 14 and 17 years of age there are some 49,000 students; between 17 and 21 some 36,000, and there are some 44,000 over 21.

4. The age limits.

The following figures give details of what must by itself be regarded as a remarkable growth of adult students—

Session.	Number of students over 21 years of age.	Session.	Number of students over 21 years of age.
1893-4	4,436	1902-3	27,969
1894-5	6,627	1903-4	35,118
1895-6	6,111	1904-5	38,376
1896-7	6,828	1905-6	43,398
1897-8	7,776	1906-7	42,537
1898-9	23,062	1907-8	41,955
1899-1900	29,042	1908-9	44,210
1900-1	34,487	1909-10	43,025
1901-2	32,859	1910-11	43,988

These figures do not, however, stand alone. They refer to the students in evening schools—to (iii.) and (iv.) in paragraph 1 of this section. They do not include the adult students in evening classes at university colleges, polytechnics, technical institutes, schools of art and many other institutions.

Taking all the institutions together, there is a certainty shown by the Board of Education registers of over 70,000 students over 21 years of age, 46,000 between 17 and 21 and 60,000 under 17, and as these registers do not include all students (special teachers' classes are omitted) there is a strong probability of the number of students over 21 years exceeding 80,000—more than twice the number of pupils of all kinds in all the public secondary schools of London.

In spite, therefore, of the 40,000 ineffective students, I feel bound to speak in the warmest terms, not only of the higher institutions, but of a great deal of the work done in the ordinary evening schools.

5. Compari-
son with
Munich.

5. It may be of interest to compare the figures as to attendance in a voluntary system with those in a compulsory system such as that of Munich. Attendance at continuation schools in Germany can be made wholly, or partially, compulsory for persons under 18. The decision as to compulsion lies with the local authority. Taking the population figures given in the *Münchener Jahresübersichten* for 1908, and making certain assumptions as to attendance at secondary schools, there ought to be in attendance at compulsory continuation schools in Munich some 12,000 boys between the ages of 14 and 17, if compulsion was applicable to all. The numbers in 1907 were 6,500. In 1910 I had an opportunity of asking Dr. Kerschensteiner where were the remainder. In effect his reply was: It is quite true that in proportion to the population a much larger number of boys ought to have attended the continuation schools. But the compulsory law was not in full working order in 1907, and will not be so until the session 1910-11. In the present school year (1909-10) the number of pupils in the continuation schools is 8,000. In September, 1910, the maximum number will be reached.

Dr. Kerschensteiner's latest report shows that the figures for 1908-9 were 7,143; for 1909-10, 8,109; for 1910-11, 9,758; and for 1911-12, 10,340. The absentees in the earlier years are accounted for in quite an interesting way. Until 1908-9 the compulsory period for boys in the day primary school was 7 years, 6 to 13. Attendance for boys over 13 was optional, but all who attended for an 8th year (13-14), enjoyed the privilege of being exempted from two of the three compulsory years (14 to 17) at the continuation school. In 1900 all boys entitled to exemption claimed it; year by year a diminishing number took advantage of the privilege. In 1908-9 an eighth year (13-14) was made compulsory in the (day) primary school, and thereafter there was, of course, no exemption from the compulsory continuation school.

The number of boys and girls of the elementary school class in the county of London between 14+ and 17+ may be taken as approximately 210,000, a figure comparable with the estimated number (195,000) of all ages now enrolled in evening institutions of all kinds. The Munich compulsory system from 14+ to 17+ practically represents the whole continuation effort. Voluntary attendance after 17 is small. The Munich student is, however, compelled to attend for 240 hours per session during each of three years. In London the number of student hours per enrolment per session amounts to 45.7 (evening school figures only). Even if the gross total of student hours (those made by effective students and those made by ineffective students taken together) be divided by the number of effective students only (90,000), the number of student hours per enrolment per session rises to an average of only 65. In this connection it should be borne in mind that thousands of London students—taking all institutions into account—spend two, three or more years over a course of study, though the average number per individual is not known approximately for any large group.

In Appendix H (page 117) will be found some notes on the continuation school system in Germany by the Council's organiser of trade schools for girls.

XVI. TRADE SCHOOLS.

(i.) General.

The day
trade
schools.

During the past ten years a type of technical school new to London has come into existence, namely, the day trade school. Separate schools have been established for boys and girls as the outcome of the knowledge now available of the conditions of social life and employment under modern conditions. Education authorities are gradually being confronted

by the important facts—(1) that modern industrial conditions are altering and eliminating the old methods of trade education, and (2) that they are providing no adequate substitute. This problem is not confined to London only, but it is natural that it should become most prominent first in the larger centres of population.

There are peculiar difficulties in London in securing for boys and girls careers of permanent usefulness in skilled occupations. Tempting opportunities of employment are held out at the school-leaving age, and these generally lead to unemployment about the age of 18 or 19, with no regular training acquired during the period. Employers to whom workshop space is valuable, and who have to turn out large quantities of work under severe pressure, tend more and more to discard the work of the learner and to look for each work-place to be filled by a fully competent worker. The attractions of London continually draw from the provinces adult workers, both men and women, who have been trained under the older conditions, and who have sufficient adaptability to fit into the London conditions and become regular inhabitants.

For these and other reasons the problem of a training for skilled trades is one of great and increasing complexity. Much of the good material passing out of the elementary schools is wasted, and it is hoped that by building up a system of continuation trade schools the London boy and girl may be given a chance to qualify for entering into the higher branches of industry to compete with the provincial and the foreigner, and that at least a part of the good ability now lost in unskilled labour may be saved to the community.

(ii.) *Trade schools for boys.*

(Memorandum by Mr. J. C. Smail, organiser of trade schools for boys.)

There are approximately 35,000 boys leaving London elementary schools each year, of whom roughly two-thirds enter unskilled trades. It may be safely concluded that an extremely small proportion of those who start life in unskilled occupations will rise to the level of skilled workers.

The problem is therefore of two parts—(i.) the training of workers when adequate facilities do not exist in workshops either through economic pressure or through the introduction of new processes or machinery; and (ii.) the diversion into more fruitful channels of a portion of the prevailing drift towards unskilled employments.

The London day trade schools deal in the main with the first part of the problem, but incidentally offer opportunities to the boys under the second category. It will be apparent that what is required is in reality a modern adaptation of methods of training rather than an effort to train workers for new or newly opened-up industries.

The trade schools are designed to take boys on the completion or towards the close of their elementary school career for a period of one, two or three years, and to give them a specialised training which will fit them to enter, about the age of 16, into workshop or factory life with a certain definite prospect of becoming skilled workers, or of rising ultimately to positions of responsibility as foremen, draughtsmen, or even managers.

The aim of the courses of instruction is to give a fairly wide, but sound, knowledge of the scientific principles underlying the operations of the group of trades in preparation for which the school specialises, to give such an initial training in handicraft as will lead to a thorough understanding of the essential character of the trade, and to make the learner an asset of value when he enters the workshop. Character, cultivated observation, intelligence and adaptability are the essential factors aimed at.

The schools have been designated "pre-apprenticeship," and this is true in regard to their position in the training of the worker, but it is only in certain trades that indentured apprenticeship continues to exist. Boys who leave these trade schools are in some cases apprenticed, and in others employed as improvers. Some have risen very rapidly to positions of responsibility and trust, and it may be said that where employers have had an opportunity of giving the products of these schools a fair test, they have found the results of the system highly satisfactory, and have readily expressed their appreciation.

It is realised, however, that such schools as exist in London cannot attempt to turn out trained workers—their function, so far, is to turn out trained learners. The capacity to learn without too much supervision is of far greater value than any information or skill, technical or otherwise, which can be picked up by a boy before he enters a workshop.

The establishment of trade schools for boys has proceeded in the following order, the duration of the training being indicated in brackets—

I. *Maintained by the Council—*

- | | |
|------|---|
| 1901 | Furniture and cabinet-making—Shoreditch Technical Institute (3 years). |
| 1906 | Engineering—Paddington Technical Institute (2 years). |
| | Engineering—Poplar School of Engineering (2 years). |
| | Silversmithing and jewellery—Central School of Arts and Crafts (3 years). |
| 1908 | Building—Brixton School of Building (3 years). |
| 1909 | General trade training—Beaufoy Institute (3 years). |
| | Book production—Central School of Arts and Crafts (3 years). |
| 1910 | Engineering } Hackney Institute (3 years). |
| | Building } |
| | Professional cookery—Westminster Technical Institute (3 years). |
| 1912 | Professional waiting—Westminster Technical Institute (1 year). |

Trade schools for boys.
(Memorandum by Mr. Smail).

List of schools.

II. Aided by the Council—

- *Woodcarving—School of Art Woodcarving (3 years).
 1898 Carriage and motor body building—Regent-street Polytechnic (2 years).
 1907 General trade training—Borough Polytechnic (3 years).
 1909 Tailoring—Regent-street Polytechnic (4 years).

There are a number of other day courses which are not strictly of the trade school type, but are intermediate in character between the trade school and the higher technical school. Of this type are the following—

- Photo-Engraving and Photo-Process Work—School of Photo-Engraving and Lithography.
 Engineering and building—Northern Polytechnic.
 Bakery and confectionery—Borough Polytechnic.

Curriculum.

The curriculum in the trade schools is designed in all cases to carry on the general education of the pupils, as well as to give specialised technical training. It is usual to devote an increasing amount of time to trade subjects in the second and third years of the courses, but each school has its own particular apportionment of hours. The schools are in operation from 30 to 39 hours per week, generally on five days per week.

Scholarships.

The Council has assisted in the development of the system by a scholarship scheme, designed to help deserving boys, whose parents' income does not exceed £160, to enable them to continue their education to the ages of 16 or 17. In this way boys whose parents could not afford to keep them at school beyond the age of 14, are saved from employment in mechanical operations with little prospects and given a chance to reach a higher plane of efficiency. The number of scholarships awarded to boys has gradually increased to 178 awarded in 1912. These scholarships include a free place in the selected school, the use of books and materials and a maintenance grant of from £6 to £15 annually, depending on the age of the holder and on the period of tenure.

A small number of free places is also given to boys not qualifying for scholarships, but reaching a satisfactory standard of attainment. Twenty free places were awarded in 1912.

The fees in the Council's institutes vary from £1 10s. to £9 9s. per annum. In the aided institutions the fees vary from £3 to £14 per annum.

Number of pupils.

The numbers are growing steadily at these schools, and although in no case have the limits of accommodation been reached, the following figures will show the part that trade schools are gradually beginning to play in the educational system—

Number of pupils in trade schools for boys.

	1904 to 1905.	1905 to 1906.	1906 to 1907.	1907 to 1908.	1908 to 1909.	1909 to 1910.	1910 to 1911.	1911 to 1912.
<i>Maintained—</i>								
Shoreditch—Furniture Making ...	89	142	132	124	123	129	119	115
Paddington—Engineering ...	—	—	34	46	38	49	60	53
Poplar—Engineering ...	—	—	21	47	57	70	84	93
Central—(Silversmithing. Book Production ...)	—	—	10	22	26	26	26	28
Brixton—Building ...	—	—	—	—	—	10	25	30
Beaufoy—General ...	—	—	—	—	45	81	104	98
Hackney—Engineering, Building ...	—	—	—	—	—	35	74	85
Westminster—(Cookery.. Professional Waiting)	—	—	—	—	—	—	72	93
<i>Aided—</i>								
Woodcarving ...	—	—	—	—	—	3	10	12
Borough—General ...	—	—	—	167	182	195	202	217
Regent—(Tailoring ... Carriage Building ...)	—	—	—	—	—	11	21	24
Street—(ing ...)	—	—	—	—	—	9	6	11
Total Number ...	89	142	197	406	471	618	819	897

It is not yet possible to say exactly what ultimate influence this influx of young, healthy, well-trained boys will have on the trades concerned. Many employers regard the schools dubiously, many are openly enthusiastic.

Subsequent employment.

In the cases of the recently-established schools at Westminster in professional cookery and waiting, guarantees of employment to all suitable boys completing their course of training have been received from firms of high standing. In other cases firms are beginning to realise the value of the boys turned out and seek to employ them accordingly. It is always necessary to bear in mind that the wages earned at first by a boy trained in this way often vary inversely as the value of the situation obtained and the ultimate prospects of training and advancement. High remuneration in undesirable places is not difficult to secure, but principals of the schools

* Day courses have been in operation for a number of years.

are steadily setting their faces against undesirable connections, and in some cases with the aid of expert consultative committees are gradually establishing a useful circle of reputable firms.

Where boys are apprenticed, as in engineering, wages begin at from 5s. to 8s. per week; in the building trades positions as improvers are obtained at from 2½d. to 3½d. per hour; as designers, draughtsmen, etc., wages begin at 10s. to £1 per week; and in wood-carving boys have received 8d. an hour directly on leaving the school.

J. C. SMAIL.

(iii.) *Trade schools for girls.*

(Memorandum by Miss F. H. Durham, organiser of trade schools for girls.)

There are at present six day trade schools for girls in the London area providing classes for training girls for eleven different trades (see below).

Investigations made into the conditions of women's work, and the recruiting for skilled trades for women have brought into evidence the special difficulties affecting the girl and women workers. With comparatively few exceptions the majority of girls leaving our elementary schools are now required to become wage-earners. A certain proportion of these do so for the sake of earning pocket-money, thus affecting unfavourably both the level of wages and the stability of employment. Many of the trades employing women are seasonal in character, and some, while requiring skilled and reliable workers for the best work, yield to the young worker little opportunity of learning the trade. Having regard to the large number of women employed in skilled or semi-skilled industries, and to the heavy rate of leakage of workers from the labour market, the facilities for training offered appeared inadequate to the needs of the trades themselves, as well as to those of the would-be entrants.

The London trade schools for girls are organised somewhat on the lines of the Ecoles Professionnelles in Paris; the training provided is intended to train girls to enter special trades.

The trades taught have been chosen because they have appeared on inquiry—

- (1) To offer good prospects.
- (2) To show a steady demand for competent hands while not providing sufficient means within themselves to meet that demand.
- (3) To lend themselves to classroom work.

The course has been fixed at two years. Parents who wish to enter their girls are required to undertake that they shall stay the full course and enter the trade at its completion.

Girls are required to be not less than 14 years of age at entry. The school hours are divided roughly in the proportion of two-thirds time to trade work, and one-third to general school subjects and art work.

The trade teachers employed in all cases have had practical workroom experience.

Care is taken to select pupils of appropriate ability for the various trades taught. Pupils are contributed chiefly from elementary schools in various parts of the county. The provision of trade schools is not yet sufficient to serve all parts of the county conveniently. Many pupils in attendance have an unduly long daily journey to and fro, while many would-be pupils, on account of the expense of fares, are unable to avail themselves of the schools.

Trade scholarships, tenable for two years, giving free tuition and bearing a maintenance grant of £8 and £12, are awarded by the Council annually on the results of a competitive examination.

Pupils are admitted also on payment of a fee of 10s. a term. The number of fee-paying pupils has steadily increased since the establishment of the schools, and is now between one-third and one-half of the whole number.

The schools are kept in touch with the trade world in two ways—(1) Members of the various trades serve on consultative committees, and visit the schools from time to time to examine and criticise the work of the classes. (2) At the end of their two years' course the girls are placed out in trade workrooms. Thus during the school course and at its completion, the practical value of the training given is put to the test by normal trade standards.

Five sets of girls have now passed through the schools since 1906, and during this period the trade schools have gained a footing in the trades. Each year the girls have been placed out readily in good houses at good initial wages. It has been found each year that many employers, with whom trade school pupils have been placed, apply again. The demand for girls trained in the schools, on the part of employers, exceeds the supply available.

Each school has an old girls' association, and a record of the after-careers of the girls who leave the school, of the places they take and of the wages they earn, is kept, and every effort is made to keep in touch with them. These schools are still only in their experimental stages, and have not yet reached their full strength. The system initiated appears to have considerable expansive power, and to justify facilities for steady growth, care being taken to follow and never to surpass the demand for skilled workers of the various trades.

Appended is a list of the schools and of the trades taught—

(1) L.C.C. Trade school, Queen-square, Bloomsbury ...	160
(2) L.C.C. Trade school, Hammersmith (temporary premises) ...	92
(3) L.C.C. Trade school, Shoreditch Technical Institute ...	112
(4) L.C.C. Trade school, Paddington Technical Institute ...	36
(5) Borough Polytechnic, with Belvedere-place annexe ...	215
(6) Woolwich Polytechnic ...	110

Total ... 725

(iii.) Trade schools for girls. (Memorandum by Miss Durham.)

Selection of pupils.

Relation of the schools to the trades.

List of schools.

The Council has decided to erect a permanent building for the Trade school at Hammersmith (to accommodate 200, now in temporary quarters).

Provision is made for training in the following trades—

- Dressmaking—14 classes.
- Ladies' tailoring—6 classes.
- Designing and making wholesale costumes—4 classes.
- Embroidery (hand and machine)—4 classes.
- Millinery—4 classes.
- Corset-making and lingerie—1 class.
- Upholstery—4 classes.
- Waistcoat-making—1 class.
- Laundry—2 classes.
- Cookery—2 classes.
- Photography—2 classes.

F. H. DURHAM.

(iv.) Schools of domestic economy for girls.

(iv.) Domestic economy schools. (Memorandum by Miss Cade and Miss Gordon).

Schools of domestic economy for girls were established by the late Technical Education Board in 1893. Their purpose, as set out in the Council minutes of 2nd October, 1893 and 13th December, 1897, is "that of training girls—not for domestic service, nor for any special industry, but as home-makers." There are now eleven of these schools in the county area. Of these three are conducted in London County Council Technical Institutes, and eight in polytechnics and aided institutes. These schools give one year's course of training in the domestic arts to girls leaving the elementary schools.

About 500 scholarships are awarded annually by the Council. These give the holders free tuition, materials, and dinner daily, together with £3 a year maintenance grant. The bulk of the pupils in these schools are scholarship holders. The number of fee-paying pupils is small.

Instruction is given in the principles and processes of cookery, laundrywork, home-dress-making, needlework, and housewifery.

An interesting development of the teaching of housewifery has been initiated at the Shoreditch Technical Institute. The new premises of the school contain a flat, in which the girls reside in turn during their school course.

A shrinkage has occurred in the demand for places in these schools in certain districts, and this has necessitated the closing of one of these schools during the current year. This is a matter of great regret.

The course of work done in these schools has been most carefully thought out, and has proved of great practical value to the successive sets of pupils who have passed through them.

Institution.	Maximum number of places reserved for the Council's scholars.	
	1st year.	2nd year.
Albany Institute, Deptford, S.E.	35	10
Battersea Polytechnic, S.W.	45	—
Borough Polytechnic, S.E.	45	—
L.C.C. Norwood Technical Institute, S.E.	30	—
L.C.C. Paddington Technical Institute, W.	36	—
L.C.C. Shoreditch Technical Institute, Hoxton, N.	45	—
*Northampton Polytechnic, Clerkenwell, E.C.	30	—
Northern Polytechnic, Holloway, N.	35	15
Sir John Cass Technical Institute, Aldgate, E.C.	30	15
South Western Polytechnic, Chelsea, S.W.	42	—
Wandsworth Technical Institute, S.W.	30	15
Woolwich Polytechnic, Woolwich	25	14
Total	428	69

*Closed, 1912.

M. CADE.
C. R. GORDON.

XVII.—OTHER INSTITUTIONS.

Other institutions.

It has become something of a habit in connection with evening education or evening classes to think only of polytechnics, technical institutes, schools of art, commercial centres, and ordinary evening schools, and to overlook a great variety of other institutions—some aided by the Council, others non-aided—which offer instruction to a number of evening students, roughly estimated at 30,000. A report on education in the evening would be incomplete without some notice of these institutions.

Further, the scope of the work of the Higher Education Sub-Committee includes technical education in all its forms, and seeing that many day colleges and other schools providing technical education are aided by the Council and are not referred to in any other report, some reference to them will be made in this section. Day trade schools are on the whole a development of the period under review, and a separate section (XVI.) has been assigned to them.

The reference to other day institutions will be confined to aided institutions, and on the whole to a simple statement of the relationship between them and the Council.

1. The University.

When the Technical Education Board began its work, the University of London was an examining and not a teaching university, and in seeking to promote higher technical education, the Board had to consider whether it should give grants to any of the colleges of university rank or suspend all action until a new university had been established. The Board came to the conclusion that, as the colleges could exercise an important influence on the development of higher technical education, it was desirable to assist the work of certain departments of these colleges and to make grants for—

(i.) Equipment and maintenance of laboratories.

(ii.) Provision of a certain number of free places in connection with county scholarships and awards of a similar character.

In accordance with this decision the Board voted grants in 1894 to University College and Bedford College. To these institutions were added, in 1895, the newly established School of Economics, and, in 1897, King's College.

During the first few years the grants were devoted partly to the equipment of laboratories, as will be shown by the following table (where E stands for equipment, and M for maintenance)—

	University College.	King's College.	Bedford College.	School of Economics.
	£	£	£	£
1894	1,000 (E)	—	500 (E)	—
1895	1,500 (E)	—	500 (E)	500 (M)
1896	500 (E) 1,000 (M)	—	500 (E)	1,200 (M)
1897	1,500 (M)	1,500 (M)	500 (E) 500 (M)	1,200 (M)
1898	1,500 (M)	1,500 (M)	500 (M)	1,200 (M)
1899	1,500 (M)	1,500 (M)	chiefly. 500 (M)	1,200 (M)

In 1899 further applications were made for equipment grants, but their consideration was postponed in view of the fact that the establishment of the university was expected at an early date. But in the same year the Council granted a long lease, at a nominal rent, of a site adjoining Kingsway to the London School of Economics, in order to enable the governors to take advantage of an offer by Mr. Passmore Edwards to erect a new building for the school at a cost of £10,000. The site was valued at £14,770.

During the six years 1894-1899, therefore, the following grants had been made to colleges of university rank—

(i.) Grants for equipment and site—

University College	...	...	...	...	£3,000
Bedford College	...	...	...	...	2,000
London School of Economics	...	...	...	...	14,770

(ii.) Annual maintenance grants, which, during the last three years of the period referred to, had been made at the rate of £1,500 to University College, £1,500 to King's College, £500 to Bedford College, and £1,200 to the School of Economics.

As these maintenance grants are largely conditional on certain numbers of free places at the colleges concerned they were not unencumbered sources of income, but to a large extent payment of fees for county scholars.

The statutes of the new University were issued in 1900, and the opportunity was then open to the Board of adopting a definite policy towards the newly constituted university. The statutes satisfied the Board generally as to co-ordination of teaching in the various colleges, as to the promotion of university extension work, as to the relationship of the university to secondary schools, as to the endowment of the university by the Government, and as to the Council's representation on the senate. But in particular the Board's requirements were met as to—

(i.) Adequate recognition to engineering and higher commercial subjects by the establishment of distinct faculties.

(ii.) Recognition of certain polytechnic teachers as teachers of the university, and

(iii.) Effective extension of the advantages of the university to evening students.

As the result of negotiations with the newly-formed Senate, the Board, after making some temporary grants, agreed in February, 1902, to give to the university an annual grant of £10,000. This annual grant, after deducting 3 per cent. for administrative expenses, was to be equally distributed between the faculties of arts, science, economics and engineering.

The Board's policy after the issue of the Statutes of 1900.

Annual grant of £10,000.

The grants made during the four years—1900-03—were—

(a) Equipment—

(i.) £2,500 for equipment of the faculty of economics.

(ii.) £500 for equipment of laboratories at University College.

(b) Maintenance—

(i.) In 1902 and 1903 grants of £10,000 to the university.

(ii.) From 1900-03 annual grants, amounting to £5,000, to the schools of the university in return for a certain number of free places.

Total annual maintenance grant in 1902 and 1903, £15,000.

The
Council's
grants from
1904 to
1911.

When the Council became the local education authority, it continued, without modification in principle, the annual grants that had been previously made, both to the university and to the schools of the university. It also made the following grants between 1904-1911—

Incorporated colleges—

(i.) An additional grant of £500 a year to King's College for the development of advanced evening courses in English.

(ii.) A grant of £340 a year for a school of history at University College.

(iii.) A grant of £300 a year for heating and ventilating engineering classes at University College.

Non-incorporated colleges—

(iv.) A grant of £1,000 a year to the East London College, which has recently been recognised as a school of the university, the grant being conditional on the allocation to the Council of 50 free places.

General university purposes.

(v.) A grant of £500 a year for university extension lectures. (Subsequently adjusted to £350, see page 19.)

(vi.) A grant of £300 a year for tutorial classes.

In addition to these maintenance grants, other grants were given as follows—

(vii.) In 1909, an equipment grant of £10,000 to University College, an equipment grant of £1,000 to the London School of Economics, and a building grant of £20,000 to Bedford College.

(viii.) In 1911, the building grant to Bedford College was increased by £10,000, on condition that a similar sum was collected from other sources.

Revised
system of
grants in
1912.

In 1912 the payment of grants to the schools of the university was placed on a different basis, and it was decided to separate the fees of scholars from maintenance grant in the strict sense of the word. University College and King's College had, by that time, been incorporated in the university, and grants to these schools were therefore included in the grant to the university. Maintenance grants were given to the other schools as follows—

	1911-12.	1912-13.	1913-14.
	£	£	£
East London College	550	550	550
School of Economics	1,100	1,100	1,100
Bedford College	300	500	500

In the same year an application was received from the Senate for an additional annual grant of £25,000. In response to this application the Council made the following grants for the three years 1911-12, 1912-13, and 1913-14 respectively—

Detailed Head.	1911-12.	1912-13.	1913-14.	
	£	£	£	
1. School of Architecture in connection with University and King's Colleges.	—	—	—	Award of grant postponed until Special Committee's report is presented.
2. Home science...	1,000	1,000	1,000	
3. Evening courses at the Goldsmiths' College	—	—	—	
4. Libraries	1,500	1,500	1,500	
5. Physiological laboratory	500	500	500	
6. Advanced lectures	500	500	500	
7. Tutorial classes and diploma courses	—	150	300	
8. University professoriate	—	5,400	5,400	
9. French and other romance languages	—	5,400	5,400	
10. English course and History course at King's and University Colleges respectively	—	410	410	In addition to grants of £840 already given.
11. Oriental languages	—	—	—	
12. General university purposes	2,000	2,000	2,000	Consideration postponed until matter has progressed to further stages.
Totals	5,500	11,460	11,610	

The Council's total maintenance grants to the University on the revised basis are as follows—

	1911-12.	1912-13.	1913-14.
(i.) The University (original block grant) ...	10,000	10,000	10,000
The University (additional block grant)	5,500	11,460	11,610
(ii.) University education (special purposes)	1,515	1,940	1,940
(iii.) Bedford College, East London College, and School of Economics ...	1,950†	2,150†	2,150†
	<u>£18,965</u>	<u>£25,550</u>	<u>£25,700</u>

A statement of the Council's grants to the university almost demands for the sake of reference as well as of interest, a similar statement of the aid from Government sources. Government grants to Universities.

The first direct parliamentary grant in aid of university education as such (in England) was an annual grant of £15,000 for university colleges in Great Britain voted in 1889. This grant has subsequently been increased at various times, and now amounts to £150,000. It was administered by the Treasury until 1911, when the administration was handed over to the Board of Education.

In March, 1912, the committee appointed to advise as to the allocation of the grant submitted their report as to grants for the five years commencing 1st April, 1911. The amount recommended for each of the universities or university colleges participating in the grant appears in column (b) of the subjoined table. In column (a) are given, for the purposes of comparison, the amounts granted for the year 1910-11.

	(a)	(b)
Birmingham University ...	£11,900	£13,500
Bristol University ...	6,900	7,000
Leeds University ...	10,900	12,500
Liverpool University ...	13,000	15,500
Manchester University ...	14,000	17,500
Sheffield University ...	7,700	7,000
University College ...	11,000	16,000
King's College ...	8,600	11,500
Bedford College ...	4,700	7,000
School of Economics ...	2,000	4,500
East London College ...	4,000	5,500
Newcastle, Armstrong College ...	6,700	8,500
Nottingham University College ...	5,700	5,700
Reading University College ...	3,900	5,500
Southampton, Hartley University College ...	2,250	2,400
Total ...	<u>£113,250</u>	<u>£139,600</u>

It is of interest in this connection to notice that in the session 1910-11 the numbers of students in the day departments were as follows—

	Full time.	Part time.
University College ...	907	627
King's College ...	159	274
King's College (for women) ...	90	242
Bedford College ...	249	73
London School of Economics ...	192	426
East London College ...	173	29

2. Evening classes at university institutions.

The number of students attending certain day departments of King's, University and East London Colleges are given in the previous paragraph. All three colleges conduct very important evening classes. Evening classes at university institutions.

(i.) King's College.

Evening work began at this college in 1856. For thirty years the classes attracted great numbers of students. A decrease in numbers followed the establishment of the polytechnics. Certain Civil Service classes which attained a remarkable success were housed in King's College buildings but they were never regarded as an integral part of the college work. They were gradually removed during the years 1910 and 1911. The evening classes forming an integral part of the college work were intended to give instruction of a university standard; many of the students obtained university degrees. In 1904 it was decided to register evening students as internal students of the university, and since then there has been a steady gain in numbers, students taking honours courses in English being specially successful. An honours course in German was instituted in October, 1911. King's College and the School

† In addition to fees for scholars holding free places.

of Economics co-operate as to share of work in certain evening university courses. The evening classes in engineering, architecture and law do important work, and attract a considerable number of students. Several advanced post-graduate lectures in engineering subjects are given by engineers in practice.

The total number of evening students, excluding theological students, was 985 in 1911-12. The Gilbert banking lectures are, in addition, attended on the average by 800 students.

(ii.) *University College.*

(ii.) Uni-
versity
College.

Arts—Provision of complete undergraduate courses in the evening has never been attempted; but during the last few years thoroughly well-attended courses for teachers have been and are still being developed. The evening school of history is now fully organised and the school of phonetics is rapidly developing. In the session 1911-12 there were 704 in attendance at the courses specially arranged for teachers, 118 of these attending the evening school of history and 284 the school of phonetics.

Engineering—Certain special courses for post-graduates and for engineers in practice delivered in late afternoon or early evening were again organised during the session 1911-12; at those held after 6 o'clock the attendance was 33; and at those held from 5 onwards the attendance was likewise 33.

Laws—The bulk of the teaching has always been and will continue to be given in late afternoon or early evening, the majority of law students either being attached to solicitors or reading with barristers in chambers. The number of law students during the session 1911-12 was as follows—post-graduate, 8; part-time evening, 4; full degree course students, 31; total, 43.

School of architecture—The inclusion of architecture as a subject for the London B.A. has led to the development of a day school for architectural students in place of the original evening school. Evening instruction in building construction and quantity surveying, being amply provided for by the various polytechnics, has been abandoned. Courses in architectural design and the history of architecture, not intended for mere beginners, have been instituted; during the session 1911-12, there were 27 students taking the evening design courses, and 73 attending the lectures on the history of architecture.

The total number of evening students for the session 1911-12 was 913.

(iii.) *East London College.*

(iii.) East
London
College.

The number of registered evening university students (session 1910-11) was 134, compared with 121 in the previous session. The following is a comparative statement giving the numbers of evening students in each faculty for four sessions—

	1907-8.	1908-9.	1909-10.	1910-11.	1911-12.
ARTS	40	45	40	50	49
SCIENCE	76	77	71	72	80
ENGINEERING	9	8	10	12	12
TOTAL	125	130	121	134	141

Post-graduate and research work—Facilities are offered to post-graduate and other properly qualified students for research work, and a considerable number of important contributions to scientific literature have been made by evening students of this college.

3. *The Imperial College of Science and Technology.*

The
Imperial
College of
Science and
Technology.
Lord
Rosebery's
proposal
of 1903.

The scheme for a "London Charlottenburg" was first brought to the notice of the Council by a letter from Lord Rosebery in June, 1903. The intention of the scheme as set out in that letter was "for making London, at any rate so far as advanced work in scientific technology is concerned, the educational centre of the Empire." It was intimated that Messrs. Wernher, Beit and Co., had offered to place a large sum of money in the hands of trustees to be applied as a contribution towards the cost of building and equipment. It was expected that the Royal Commissioners of the 1851 Exhibition would provide a site of about four acres on condition that funds sufficient for building and equipment were obtained from other sources and adequate provision made for maintenance. The building and equipment were estimated to cost £300,000, and it was stated that the institution, when complete, would, together with the site, represent a value of £500,000. The cost of maintenance was put at not less than £20,000 a year, and for this sum Lord Rosebery approached the Council. It was stated that, while the £20,000 would secure the institution against all risk of failure for want of income, the sum would, owing to the growth of the institution, require to be largely increased, presumably from other sources than the Council. The new institution was to work in close co-operation with the Royal College of Science, the Royal School of Mines, the Central Technical College, and other branches of the University of London, but was to be organised as a distinct school of the university, under the management of its own committee, on which it was hoped the Council would appoint representatives. The new institution was not to

duplicate or overlap any provision then existing in London, but to supplement that provision by new subjects, or by developing subjects inadequately dealt with by existing institutions.

The Council on 21st July, 1903, resolved—

(a) That the Council expresses its high appreciation of the important proposal contained in Lord Rosebery's letter, and would cordially welcome the establishment of further provision in London for advanced technological teaching and research.

The Council's resolution of July, 1903.

(b) That the Council, in response to the request contained in Lord Rosebery's letter, places on record its opinion that when the land, buildings, and equipment for the proposed additional technological teaching and research are provided to a value of not less than £500,000, the Council will be well advised to contribute, out of the moneys annually placed at its disposal under the Local Taxation (Customs and Excise) Act of 1890, a sum not exceeding £20,000 per annum, towards such part of the work as falls within the statutory definition of technical education, subject to the following conditions—

(i.) That a scheme be prepared to the satisfaction of the Council for the constitution of the governing body, and the adequate representation of the Council thereon.

(ii.) That financial arrangements, adequate to the whole maintenance of the proposed work, are made to the satisfaction of the Council.

(iii.) That, in view of the national scope and utility of the proposed work, substantial contributions towards maintenance be made from funds of a national character.

(iv.) That due provision be made in the scheme to prevent overlapping and secure co-ordination of the work already carried on by the university colleges, polytechnics, and other science and technological institutions, and the proper connection of the whole with the university.

(v.) That a sufficient number of scholarships, including free places, be placed at the disposal of the Council.

(vi.) That it be considered whether other counties and boroughs should not be invited to contribute towards the maintenance, receiving in return the right to send their picked scholars for instruction under the proposed scheme.

It will be seen that Lord Rosebery's letter and the Council's resolutions contemplated a new and separate institution for the highest technical education, which would be a school of the university, co-operating with other schools, and undertaking work supplementing but not duplicating or overlapping any existing provision.

The Departmental Committee of 1904.

In April, 1904, the President of the Board of Education (Lord Londonderry) appointed a Departmental Committee to inquire into the present and future working of the Royal College of Science and the Royal School of Mines, and into questions connected therewith.

A special combination of circumstances had led the Government to make that inquiry. These were—

(i.) The approaching completion, at a cost (exclusive of site) of over £250,000, of the new laboratories and buildings of the Royal College of Science.

(ii.) The munificent offer conveyed in Lord Rosebery's letter to the London County Council.

(iii.) The rapid growth of the gold-mining industry in South Africa, and the insufficient provision for the education of the British mining-engineer as compared with his foreign competitors; and the need for large sums of money to restore the old-established and famous Royal School of Mines to its former relative position.

(iv.) The installation (in 1900) of the central offices of the University of London in the buildings of the Imperial Institute at South Kensington.

At South Kensington there were thus gathered together in close proximity the central offices of the University of London, the Central Technical College, the Royal College of Science, and the Royal School of Mines. The Departmental Committee were satisfied that a comprehensive scheme was needed. The scheme in outline was for a chief technical school of the empire to be provided partly by such arrangements between the Government on the one hand and the City and Guilds of London Institute on the other, as would enable the resources of the Royal College of Science, the Royal School of Mines and the Central Technical College to be used with far greater effect and economy, and partly by provision of a fully-developed school of mining and metallurgy, with departments for the principal branches of engineering and for other special subjects. The first extensions (new buildings) were to be grouped immediately round the nucleus provided by the Royal College of Science and the Central Technical College. It was contemplated that separate departments might be conducted in detached colleges. Admission to the higher technical courses was to be based on a satisfactory test. These courses were to be restricted to duly qualified students who would, it was hoped, be drawn from all parts of the empire. It was proposed to create a governing body or council representing all the important interests concerned.

Scheme of the Departmental Committee.

The Government agreed to allow the Royal College of Science and the Royal School of Mines to be brought into the scheme under a common government and administration, and, when this was done, to make the following financial arrangements—

(i.) To place at the disposal of the new institution the buildings then used for the purposes of the Royal College of Science at South Kensington on the east side of Exhibition-road, and the buildings then in course of erection for the same purpose on the west side of the road.

(ii.) To place in the estimates a grant of £20,000 per annum in respect of the cost of the staff and of the laboratory expenses.

(iii.) To maintain for the present both sets of buildings in external repair.

(iv.) To provide heating and lighting for both sets of buildings and to pay local rates.

(v.) To satisfy the claims of the staff for such pensions as might be assumed to have accrued up to the date of transfer.

The City and Guilds of London Institute also indicated their willingness to bring the Central Technical College into a scheme to be framed on the general lines recommended, subject to withdrawal at any time if the council of the City and Guilds Institute were not satisfied.

It will be seen that, while the scheme set out in Lord Rosebery's letter was for a separate institution co-operating with other branches of the London University; the scheme of the Departmental Committee established an association of the colleges at South Kensington—the Royal College of Science, the Royal School of Mines, and the City and Guilds (Engineering) College. The first scheme was for an institution independent of existing institutions and co-operating with them, but undertaking more advanced work; the second scheme established an institution with the same objectives of more advanced work and co-operating with other institutions, but based on a foundation of the three colleges already mentioned.

The recommendations of the Committee were embodied in a Royal Charter of Incorporation, dated 8th July, 1907.

The Council's resolution of 1903 provided, as one of two general conditions, that the Council must be satisfied that land, buildings and equipment for the proposed additional technological teaching and research are provided to a value of not less than £500,000.

The capital placed at the disposal of the governing body of the Imperial College, at or since its incorporation, amounted (September, 1912), with interest, to £352,954, the principal contributors to which sum were the executors of the late Alfred Beit, £135,625, Messrs. Wernher, Beit and Co., £100,000, the Goldsmiths' Company, £50,000, Sir E. Cassel, £10,000, and Mr. Max Michaelis, £10,000.

The Commissioners of the Exhibition of 1851 have also leased to the college at a nominal rental about five acres of their estate at South Kensington. This lease has been granted for 999 years; the value is estimated at £200,000.

There is thus a record of capital to the extent of £552,954 having been given to the college.

The second of the two general resolutions adopted by the Council in July, 1903, provided that the Council's grant should be applied towards such part of the work of the college as falls within the statutory definition of technical education. The Act of 1902 rescinded this statutory definition.

As to the detailed conditions attached to the Council's resolutions, the position is as follows—

Condition (i.)—"That a scheme be prepared to the satisfaction of the Council for the constitution of the governing body and the adequate representation of the Council thereon."

On 14th May, 1907, the Council, at the invitation of the Board of Education, appointed five of its members as representatives of the Council on the governing body of the Imperial College of Science and Technology, subject to a charter being granted to the college in the terms, so far as they related to the representation of the Council, of the draft charter which had been submitted to the chairman of the Council by the Board of Education. The charter, as subsequently granted, was presented to the General Purposes Committee of the Council on 15th July, 1907.

Condition (ii.)—"That financial arrangements adequate to the whole maintenance of the proposed work are made to the satisfaction of the Council."

Condition (iii.)—"That in view of the national scope and utility of the proposed work, substantial contributions towards maintenance be made from funds of a national character."

The Imperial College is within sight of an annual expenditure of £100,000. Towards annual maintenance the Council made a first conditional grant of £5,000 in 1908-9; a second of £8,000 for the session 1909-10, and a further grant of £8,000 for 1910-11. But a further grant was withheld until the Council could be satisfied that a larger contribution (than £20,000 a year) was to be made from funds of a national character towards the maintenance of the college. After prolonged negotiations, and the final decision of the Government to replace the annual contribution of £20,000 by one of £30,000, the Council in July, 1912, agreed to a grant of £13,000 a year for five years (1912-1917).

Condition (iv.)—"That due provision be made in the scheme to prevent overlapping and secure co-ordination of the work already carried on by the university colleges, polytechnics and other science and technological institutions, and the proper connection of the whole with the university."

Royal
Charter
of 1907.
Capital
available.

The
Council's
conditions.
(i.) As to the
governing
body.

(ii.) and
(iii.) As to
finance.

(iv.) As to
co-ordina-
tion.

It is satisfactory to be able to record that the governing body of the Imperial College of Science and Technology have conferred with representatives of the Senate of the University of London with regard to the co-ordination of the work of the Imperial College with the work of the University and its other schools, and that as a result of this conference a definite scheme has been adopted.

Similar procedure has been followed with a view to the prevention of overlapping in chemistry, physics, botany and zoology, and a committee of professors, with powers of co-option so as to include university colleges, polytechnics and other scientific and technical institutions, is now engaged in working out details.

In considering this matter it should be remembered that the Imperial College was established in 1908, and that, although its object is to make provision only for advanced students in scientific and technical instruction, it is probable that the machinery for the production of the necessary supply of such students has, until recently, been working only to a limited extent. The result has been that, owing to the insufficient supply of advanced students, students of relatively elementary status have been admitted. The evidence to which reference is made hereunder shows, however, that advanced students are gradually displacing the elementary students. The governing body of the college state that the more elementary portion of the work is being confined to the narrowest possible limits consistent with continuing to carry on the work of the Royal College of Science, the Royal School of Mines and the City and Guilds (Engineering) College, which involves the acceptance of Government students, whose special attainments are very high, but whose standard of general knowledge is on a much lower level. In this connection it is interesting to note that the first examination for entrance into the Royal School of Mines was held at the beginning of the academic year 1912-13; and that in all probability an entrance examination to the Royal College of Science will be held at the beginning of 1913-14.

Character of the work.

Some of the departments are filled to overflowing; the department of botany is being enlarged, and a new department of plant physiology is being built. Students of all classes of attainments are being attracted to the college, and the authorities are attaining the position of being able to reject the least advanced of them. It is hoped, ultimately, to make the standard of attainment upon entrance equivalent to the commencement of the existing second or even third year, so as to do away with the present first year or the present first two years, devoting the corresponding amount of time to extending the courses at their higher ends.

The number of students attending post-graduate courses at the three colleges were—

Number of students.

	1907-8.	1910-11.	1911-12.
Engineering	5	41	45
Physics and chemistry	12	38	41
Botany, zoology, geology... ..	6	100	88
Metallurgy	2	6	1
Aeronautics	—	5	3
	25	190	178

In the three colleges there are some 900 students of all kinds (887 in 1910-11).

Condition (v).—"That a sufficient number of scholarships, including free places, be placed at the disposal of the Council."

(v.) As to scholarships.

The Council at present has the right of nomination to 25 free places at the Imperial College of Science and Technology in part consideration of its grant of £13,000; of these only three are being utilised. There is no immediate prospect of the whole of the free places being required.

Condition (vi.) "That it be considered whether other counties and boroughs should not be invited to contribute towards the maintenance, receiving in return the right to send their picked scholars for instruction under the proposed scheme."

(vi.) As to neighbouring authorities.

The growth and development of provincial universities has prevented any important steps being taken in this direction. It is hoped, however, that, as the Imperial College develops, the class of the work which it is carrying on will be realised by provincial authorities, and that recognition of the advanced character of the work, both in the sending of scholarship-holders and perhaps in the award of grants, may follow.

4. The London School of Economics and Political Science, Clare-market, Kingsway, W.C.

The objects of this school are to promote the study of economics and allied subjects, and to provide courses adapted to the needs of persons engaged in the public service or in the higher branches of commerce and industry.

The London School of Economics and Political Science.

The school was founded in 1894, and was first housed in rooms at No. 9, John-street, Adelphi. Additional accommodation was also provided by the Society of Arts and the London Chamber of Commerce. The increase in the number of students necessitated removal in 1896 to 10, Adelphi-terrace. In 1900 the reconstituted University of London established a faculty in Economics and Political Science and admitted the school as a school of the university. The question of accommodation immediately presented difficulties. These were overcome chiefly through the beneficence of the late Mr. Passmore Edwards, who provided £11,000 towards the erection of new premises. The London County Council placed a site in Clare-market at the disposal of the governors, and the building was erected at a total cost of

£18,000, the whole of which was defrayed by private subscription. In 1906 further extensions were made, and in 1910 the London County Council, on the understanding that a fund would be raised for a permanent extension, granted a licence for the use of land adjacent to the original site for the erection of temporary rooms.

Growth in
number of
students.

The following table shows the increase in the number of students that has taken place in recent years—

Session.	Students taking full course.	Army Class.	Students taking separate lectures.	Teachers.	Railway Students.	Total.
1907-8	109	32	291	61	229	722
1908-9	119	31	344	259	286	1039
1909-10	148	30	419	376	300	1273
1910-11	199	31	673	684	352	1939
1911-12	194	32	682	621	459	1978

The library forms so important a part of the school that it requires special mention. In 1896 the governors set themselves to remove "the almost insuperable hindrance which the absence of a library for economic research had hitherto put in the way of English students." A public appeal was made which produced over £2,500, and the library was opened in November, 1896. The collection now includes not less than 120,000 volumes and at least as many reports, pamphlets and other documents, many of which are unique. The average annual growth amounts to about 40,000 items.

5. The Goldsmiths' College.

The Goldsmiths' College.

The technical departments carried on at Goldsmiths' College comprise—the school of art (permanent), the departments of engineering and building (pending the erection of the South-Eastern Technical Institute). There is also a science department (permanent).

(i.) The School of Art.

(i.) The School of Art.

The "elementary" classes in the school of art were abandoned on the transfer of the college, as a whole, to the university, in 1904, and the number of class entries in other branches of the work fell off considerably, owing partly to the long-continued uncertainty whether the school would be maintained, and partly to the reduced amount of space available for it. So soon, however, as its permanence was assured by an arrangement between the University and the London County Council, the Delegacy included new accommodation for it in the scheme of building initiated in that year (1906) and completed in the following year (1907). The school has, since the latter date, occupied entirely new premises, and has rapidly increased in numbers. The principal new features in the work of the art school are—

(i.) The establishment of a day class (at a fee of £10 10s. for the session) in portrait-painting and figure-composition.

(ii.) The appointment of a special teacher of book illustration.

(iii.) The establishment of day and evening classes in etching, mezzotint, etc., and in lithography (the latter being open only to students who have entered their names, and paid the necessary fees, for life, design, or book illustration).

(iv.) The appointment of an additional teacher of drawing and painting from the antique, still life, etc.

(v.) The appointment of an additional teacher of modelling.

(vi.) The establishment of a class under the head master in the methods of art teaching.

All the newly appointed teachers—visiting, in each case, once or twice a week—are artists of repute.

There is a written understanding with the London County Council that no new classes in artistic "crafts" be opened either at Goldsmiths' College or at the Camberwell School of Arts and Crafts until the proposal has been submitted to the authority controlling the other institution (*i.e.*, the Council or the University, as the case may be) for its comments. "Craft" teaching, however, plays but a relatively small part in the work of the Goldsmiths' College School of Art.

The numbers at the end of the past session (1911-12) were as follows—Individual students in attendance (day and evening), 37; individual students (day only), 40; individual students (evening only), 78; total, 155.

(ii.) *Engineering and building departments.*

These departments are carried on temporarily at the college under an arrangement between the University of London and the London County Council, pending the provision of a school of engineering and building in the neighbourhood, at the expense of the Council. It has to be admitted that the classes have barely held their own, the uncertainty as to the future having had a very adverse effect upon the growth of the classes, which has also probably been checked to some extent by the fact that they have been conducted in buildings mainly devoted to other purposes.

The provision and gradual equipment of an *engineering laboratory* has been one of the principal new features in the conduct of this department during the past 6 years. It is still, however, quite inadequate to the needs of a flourishing engineering school. Another, and an equally important, feature is the increased stress which has been laid on *approved courses*, as opposed to individual classes, and the preferential fees charged for such courses during the last 4 years. At the present time a large majority of students in the department are taking approved courses, or classes forming part of such a course. Thirdly, *tutorial classes* (without extra charge) have been established, so that every student has the opportunity of doing his "homework" under supervision.

Minor innovations in the organisation of the department are the provision of classes in "Gas supply" (attended chiefly by employees of the South Metropolitan Gas Company), and in telephony (at the request, in the first instance, of the National Telephone Company). Some specialising has also taken place in fourth-year electrical engineering, and the land surveying classes have been very much extended in character, the highest kind of open country surveying being now taught and practised.

In the building department, the practical class in brick-cutting was abandoned in 1906, the class being a small one, and the room being required for other purposes.

The numbers of individual students at the end of the past session (1911-12) were—engineering department, 240; building department, 107.

(iii.) *Science department.*

From the point of view of academic, as distinguished from strictly technical, instruction, this is by far the most important department of the college. All the lecturers are "recognised teachers" of the university, and the courses are arranged primarily with a view to preparation for the B.Sc. degrees (pass and honours) of the university. The subjects of instruction are mathematics, physics, chemistry, botany, zoology, and geology. Arrangements are made for students engaged in research, or preparing for the D.Sc. degree; and a substantial amount of research is also carried on by the staff of the chemistry, physics, and botany sections of the department.

The number of individual students towards the end of the session 1911-12 was 127 (exclusive of 142 students of engineering and building who attended this department for classes in practical mathematics).

6. *Leathersellers' Company's Technical College, Tower-bridge-road, S.E.*

This college has grown out of the technical school of leather manufacture which was opened at the Herold's Institute, Bermondsey, in 1895, and which was carried on by the joint co-operation of the Leathersellers' Company, the governing body of the Borough Polytechnic, and the London County Council. The institute was uniformly successful during its fifteen years' existence, but it was long patent that the premises and equipment were not adequate to give a thorough practical and technical training. The Leathersellers' Company accordingly founded, at a cost of £20,000, a new college situated on the site of a formerly well-known tannery. The college has a frontage to Tower-bridge-road, and was opened in the autumn of 1909.

The buildings have been very completely equipped, and consist of (a) laboratories in which a good practical training in the chemistry and bacteriology of leather manufacture can be given; and (b) a model tannery and dye house in which the manufacture of leather can be conducted on a small but commercial scale. There is a machine shop, a small curriers' shop, a library, and a museum, and lime and tan pits.

In the day, provision is made for giving a thorough course of instruction to those who will occupy responsible positions in tanneries. In the evening, special courses are held for workmen and others actually engaged in tanning, currying or leather dressing. Three separate courses are provided for heavy leather tanners, light leather tanners and leather dressers and curriers, respectively, the first two being three-year courses and the last a two-year course. In all of them instruction is given in chemistry as well as in practical technology. A separate two-year course is arranged for leather factors, buyers and users of leather, in which both theoretical and practical instruction is given in the principles and processes of leather manufacture only.

There are 35 day students and 71 evening students. The Council's annual grant to the college amounts to £500.

7. *The Working Men's College, Crowndale-road, St. Pancras, N.W.*

The Working Men's College was founded in 1854 by the Rev. F. D. Maurice, and was formed into a corporation in 1874. It commenced its existence in premises in Red Lion-square; in 1857 it was transferred to Great Ormond-street; and in October, 1905, it entered into possession of the present buildings.

(ii.) Engineering and building departments.

The Leathersellers' Technical College.

The Working Men's College.

The students of the college are, for the most part, working men, and its object is to provide instruction at the smallest possible cost and thus to try to place a liberal education within the reach of working men.

The majority of the teachers are unpaid, and it may be noted that Ruskin and Rossetti were at one time members of the staff. The Council did not contribute towards the erection of the new building, the whole cost of which (about £22,000) has been met by donations, as a result of a special appeal, and by the sale of the Great Ormond-street premises. The Council, however, made a grant of £600 towards the cost of equipment. The Council's maintenance grants to the college have increased from £50 in 1894-5 to the present fixed grant of £500.

The total number of students was 1,428 in 1910-11.

The principal activities of the work of the college are as follows—Classes in languages; natural and experimental science; mathematics; economics and law; elementary commercial subjects; art; ambulance; and gymnastics.

The college has a strong social side, including cricket, cycling, swimming, rambling, chess and glee clubs; debating and musical societies, and Sunday evening Shakespeare readings. There are attached to the college a large hall, a library, a large common room, and a coffee room in which refreshments are served.

The college holds almost a unique place in the system of evening education; it is the centre of a strong social and intellectual movement, successfully fulfilling the objects of its founders.

8. The Morley Memorial College, Waterloo-road, S.E.

The Morley
Memorial
College.

The Morley Memorial College (named after the late Samuel Morley) was founded in 1889, in order to supply men and women of the working classes with teaching in science and technical subjects. Under a scheme made by the Charity Commissioners in 1891, it receives certain assistance from the City Parochial Foundation. The grant for 1910-11 was £500. It appeals, like the Working Men's College, to older students than those who usually attend evening classes.

Prior to 1906, the work in domestic economy and in science and technology was the only part of the educational activities of the college for which the Technical Education Board or the Council had allowed grants. In that year, however, the Council discontinued such payments, and allowed a grant of £500 towards the cost of carrying on the educational work, provided that the college council were prepared to co-ordinate the evening classes at the college with those of other neighbouring centres, and were also prepared to carry out to the satisfaction of the Council structural and other improvements considered necessary at the college.

The college has a most important place to fill in the scheme of education for South London, as a really well-equipped college of the humanities for adult working men and women. This has already been recognised to some extent in the scheme of co-ordination carried out under the direction of the Council between the college and the Borough Polytechnic. The two institutions are now closely affiliated, and form almost a joint institution, with a joint prospectus of classes, a joint committee for the decision of matters relating to the curricula, and a growing feeling of unity of purpose.

A further point to be emphasised in this connection is that the college is much more than a mere centre for teaching the subjects named. It has also a very extensive and vigorous social side, with numerous clubs and societies connected with the various classes and groups. Nor do these exist only for recreational purposes; in many cases they form a nucleus for additional study. The need and the possibility of expansion on this side are felt as much as the need and the possibility of expansion on the purely educational side.

The students number about 1,100. The Council's annual grant is £500.

9. The Wandsworth Technical Institute.

The Wandsworth
Technical
Institute.

During the winter of 1893-4, a course of lectures on science was delivered in Wandsworth Town Hall, under the auspices of the Technical Education Board. As a result of these lectures a committee was formed, with the object of establishing a permanent technical institute, and this committee fixed upon a disused skating rink in High-street as the most suitable premises for their purpose. Here, in September, 1895, the Wandsworth Technical Institute commenced its existence under the control of a governing body representative of the various local authorities.

The original subjects of instruction comprised evening courses in building trades subjects, science, languages, and literary and commercial subjects. Later on, a secondary school for boys and girls, and a domestic economy school for girls, were added.

The record of the institute is a satisfactory one. Its progress may be judged from the fact that, whereas 198 students enrolled in the evening classes in 1895, the number had increased to 723 in 1911-12.

The day work of the institute has been equally successful, an increase taking place in all departments. So much has this been so that several additions of a temporary character had to be made to the buildings, and finally the Council built a new secondary school for girls, to which the girls attending the secondary school at the institute were transferred. A similar step has recently been approved of in regard to the provision of a secondary school for boys.

The domestic economy school has become a special feature of the work of the institute. The course of training extends over two years, and special care has been taken to render it thoroughly practical. To this end the governors have rented a house in close proximity to the institute. Here the girls reside in turn and obtain practical experience in housewifery.

In spite of the removal of one day department, and the projected removal of another, it has for some time been apparent that new premises are required, not only on account of the unsatisfactory nature of the present buildings, but also because of their inadequacy.

The Council has therefore purchased a site adjoining the present institute for the purpose of the erection of a new building and the question of the character of the instruction to be given therein is at present under consideration.

From the outset the Council has given grants to the Wandsworth Technical Institute in respect of (a) the secondary school; (b) the domestic economy school for girls; and (c) the technical evening classes. The total amount of the maintenance grants exclusive of special equipment grants, thus given by the Council during the period from 1903 to the end of the session 1911-12, exceeded £38,600, constituted as follows—(a) grants to the secondary school, approximately £16,500; (b) grants to the domestic economy school for girls, £2,100; and (c) grants to the technical evening classes, £20,000.

10. *The London Central Young Men's Christian Association.*

The Young Men's Christian Association was founded by the late Sir George Williams on the 6th June, 1844, and established its headquarters at Radley's Hotel, Blackfriars, E.C. Its membership quickly increased and new premises had to be sought repeatedly, until in 1854 it was decided to purchase the lease of 165, Aldersgate-street, E.C., formerly occupied by the City of London Literary and Scientific Institute.

The Young Men's Christian Association.

In both size and equipment the new building was a notable advance upon the premises hitherto occupied, and a scheme of evening educational classes was at once inaugurated. These were chiefly of a commercial character, but in addition to the modern language classes in French and German, meetings were frequently held for foreign members of the association resident in London. In course of time Spanish was added to the curriculum, and subsequent developments included elocution and public speaking, as well as special courses in magnetism and electricity, telegraphy, and first aid.

As the work of the association continued to grow rapidly another forward movement was made in 1881, when the leasehold of Exeter Hall was purchased. To equip the building in a suitable manner a further sum of £20,000 was necessary. This amount was raised by subscriptions in a few months, and on the 29th March, 1881, the new premises were opened by Lord Shaftesbury as the headquarters of the association in London. The facilities which this additional accommodation provided for educational work led to a further expansion of the curriculum of the new centre. Classes were immediately opened in all the more important commercial subjects, including modern languages, Civil Service courses were successfully established, and special lectures on advertising, estate agency, journalism, salesmanship, the technology of paper and textiles soon became important features of the educational scheme.

Meanwhile, a second City centre was opened at 59, Cornhill, and a most successful scheme of classes for the examinations of the Institute of Bankers was developed. Latin, Greek, logic, history, and mathematics were added to the curriculum, and special courses for the matriculation examination of the University of London followed.

The students of all three centres belong almost exclusively to the mercantile classes, and the curriculum, as indicated above, is primarily commercial. In the session 1909-10, the number of individual students exceeded 11,000; but, during the last two sessions (1910-12), the educational work of the Strand centre has been practically in abeyance, owing to the demolition of Exeter Hall and the occupation of temporary premises at the "Morning Post" offices which provided very limited accommodation.

The completion of the new headquarters at Tottenham-court-road has greatly increased the provision for educational work on the part of the association, and the extensive arrangements made for gymnastics, athletics, and social life can hardly fail to attract a much larger number of young men than has hitherto been possible.

11. *Minor institutions.*

Some seventeen institutions are grouped together as minor institutions, not because their work is small in quantity or in any way inferior in character, but because the institutions have not already been referred to individually, nor are they included in any of the large groups such as polytechnics, technical institutes, or settlements.

Seventeen minor institutions.

(i.) *The Albany Institute, Albury-street, Deptford, S.E.*

This institute is administered by the Deptford Fund, and is a prominent philanthropic organisation carrying on social, educational, and religious work. It comprises a sick kitchen, a girls' club, a school of domestic economy for girls, and other activities of a social or religious character. Many local institutions, clubs and classes for men, boys, and women, make use of its facilities. The school of domestic economy was opened on 2nd October, 1899, with full accommodation and equipment for 30 day pupils. In 1909, at the request of the Council,

(i.) The Albany Institute.

the committee of the Deptford Fund increased the number of places to 45, of which 10 places were reserved for second-year girls. A small flat, consisting of a kitchen, a scullery, and two bedrooms, was then equipped in the institute for training in every branch of practical household management. The Council's grant to the school of domestic economy for 1910-11 was £537.

In connection with the Albany Institute the Deptford Fund Committee opened a home for girls at Charlton, in November, 1910, in buildings formerly known as the Charlton National schools, which had been placed at their disposal by Sir Spencer Maryon-Wilson. The Deptford Fund are proposing to develop the work and to open a school for domestic economy specifically for girls of a class inferior to those received in the Albany Institute. It is proposed to provide accommodation for 45 girls as from September, 1913. The Council has decided to give grants for building, equipment, and maintenance.

(ii.) *The Aldenham Institute, Goldington Crescent, St. Pancras, N.W.*

(ii.) The
Aldenham
Institute.

The Aldenham Institute is a social and recreative institute, having an education committee which conducts practical and theoretical evening classes in letterpress printing. Instruction in these classes is confined to members of the printing trade, and afternoon classes are held for printers' apprentices. In 1911-12 there were 140 students (the highest number ever reached) as compared with 105 in 1910-11. The 40 students in the Honours class (practical typography) all have come up from the lower classes, and some are attending for a fifth year. The Council's grant in 1910-11 was £160.

(iii.) *The Blackheath, Lee, Lewisham and Greenwich School of Art.*

This school was established in 1880 by a number of residents in the neighbourhood of Blackheath who were interested in the teaching of art and science. From modest beginnings in a private house it has developed into a separate school-building especially erected for such accommodation, and containing a fine set of studios with modern equipment. The school aims primarily at giving a general education in the principles of art, the courses of instruction including, broadly, painting, drawing, and design in all branches. Of recent years attention has been given to instruction in certain of the artistic crafts, such as pottery and china painting, enamelling and metal work, embroidery, woodcarving, and bookbinding. The number of students at the school in 1910-11 was 288, while the Council's grant in that year was £650.

(iv.) *The Church Institute, Wiseton-road, Upper Tooting, S.W.*

This institute is mainly a social and recreative institution of a semi-philanthropic character which has grown out of a night school opened in 1868 by two brethren of the Guild of St. Alban. One of these was the present manager, Mr. C. H. Baker. The institute belongs broadly speaking, to that type of institution which includes the Working Men's College, Toynbee Hall, Morley College and the Bermondsey Settlement. As distinct from the institutions named, however, it attracts for the most part a younger class of student, and the educational work approximates partly to that of a commercial centre, partly to that of an evening school. There has been a continuous fall in attendance at the classes during the last two years, the decline during 1911-12 being serious: up to the end of February, 1912, the nightly average of class attendances was only 600, as compared with 950 up to the same period in 1911, this decline being noticeable chiefly in the Civil Service, shorthand and book-keeping classes, which have hitherto been the mainstay of the educational work. The loss of income from grants occasioned by this decline in attendance causes anxiety for the future of the Church Institute as an educational organisation. The Council's grant in 1910-11 was £80.

(v.) *The Clapton and Stamford-hill School of Art, 81, Clapton-common, N.E.*

This school is a small school of art, occupying a detached house facing Clapton-common. The courses of instruction generally resolve themselves into three groups for—

- (i.) Students of applied art, designers, black-and-white draughtsmen, etc.
- (ii.) Students preparing to become art teachers in secondary schools.
- (iii.) General art education for students preparing for R.A., L.C.C. and other scholarships.

The work of the school under (ii.) will probably be materially affected by the new regulations of the Board of Education for the training of art teachers.

74 students attended the school in 1911-12, as compared with 76 in 1910-11, while the Council's grant in the last-mentioned year was £140. As in the case of many other art schools, the success of the institution is due to the personal influence of the principal.

(vi.) *The Craft school, Stepney-green.*

The Craft school was established under the name of the "Whitechapel Craft School," in Little Alie-street, in January, 1891. At first supported entirely by subscriptions from private individuals and a few of the City companies, then for two years assisted by the trustees of the City Parochial Charities, it was awarded a grant in 1894 by the Technical Education Board, and this grant was considerably increased on the removal of the school in 1896 to 137-141, Globe-road. In 1907, it became urgently necessary to obtain more suitable accommodation for the conduct and development of the work of the school, and, in January, 1908, the school was removed to premises at 37-39, Stepney-green, E., which were purchased at a cost of £2,750, and equipped at a cost of £1,500. The Council's annual grant was then increased from £500 to £750, at which amount it still remains.

The Craft school is an art and technical school for designers, workmen, apprentices and boys. A feature of the school is the large number of elementary school boys who are in attendance, the elementary art and handicraft classes being mainly intended for such boys, who are nominated by their head masters as "free students." There are 317 students on the roll.

(vii.) *The Devas Institute, New-road, Battersea.*

The Devas Institute is practically a boys' club with a strongly developed educational side. It has suffered by the removal of the South-Western Railway works to Eastleigh, and will be further affected by the removal of the South-Eastern and Chatham Railway works to Ashford. The whole character of the district has changed, and the type of lad attracted by the institute has correspondingly altered. It will probably take a little time for things to adjust themselves to the new conditions. At present the attendance at the classes is not so large as in previous years.

The strong stand that the institute has always made in refusing its privileges to members who do not attend classes on three nights a week, makes it all the more difficult for it to meet the competition of classes in the Council's evening schools with no fee or only a low fee on the one hand and of free clubs in connection with religious organisations on the other.

The students number 226, and the Council's annual grant is £50.

(viii.) *The Lambeth School of Art.*

The Lambeth School of Art was instituted in June, 1860, when the foundation stone at the present building was laid by the late King Edward VII., then Prince of Wales. Since that time many distinguished painters, sculptors, illustrators and other art workers have received all, or part of, their training at this institution.

The school provides systematic instruction in drawing, painting, modelling and designing, adapted to the requirements of professional artists, designers, craftsmen, teachers and those who study art as a branch of general education.

There are day and evening classes. The school is well equipped with casts, etc., and as figure drawing forms a prominent feature in the various courses of study, life classes are held both day and evening. 179 students were enrolled during 1911-12 as compared with 169 in 1910-11.

The last grant (1910-11) awarded by the Council amounted to £570. Under a scheme for the co-ordination of art education in London which was recently considered by the Council it was proposed that the Lambeth School of Art should be amalgamated with the L.C.C. Westminster School of Art. The question of amalgamation originated with the need for better accommodation. The proposal has been dropped for the present.

(ix.) *The Herold's Institute, Drummond-road, Bermondsey, S.E.*

The premises of Herold's Institute, which had remained unoccupied since the removal in 1909 of the leather tanning and dyeing classes to the new Leathersellers' Company's Technical College, were reopened by the Governing Body of the Borough Polytechnic during the Christmas term, 1910, for instruction in farriery. Subsequently classes in the care and management of horses and in general educational subjects for van boys were established. The students number 150 and the Council's grant amounts to £250.

(x.) *The Royal School of Art Needlework, Exhibition-road, South Kensington, S.W.*

The Royal School of Art Needlework was established in Sloane-street in 1872 by H.R.H. Princess Christian, at the suggestion of the Hon. Lady Welby, her object being (i.) to revive the art of embroidery, and (ii.) to furnish a suitable means of livelihood to gentlewomen. As originally constituted it consisted of a school where workers were taught the art of embroidery, and employed in producing the articles sold in the school showrooms, and in executing orders. In 1875 the school was removed to the north-east galleries of the Exhibition of 1862. In 1896 the school obtained a lease of a site at the corner of Exhibition and Imperial Institute roads for 999 years, and plans for a new building were drawn up. In 1895 the committee of the school desired to extend its usefulness to a larger class of persons, and application was, therefore, made to the Technical Education Board for a grant for the purpose of extending the teaching department by providing suitable teachers for the classes in design, and its application to art needlework. The Technical Education Board could not do this, according to their rules, but offered a grant for technical evening classes, on condition that the accounts of these classes were kept entirely distinct from those of the other departments of the school, and submitted each year for the Board's approval, that certain restrictions as to admission to the classes should be removed, etc. This offer the school committee accepted after consideration, there being no difficulty in satisfying the Board's conditions, as the technical evening classes were entirely apart from the ordinary work of the school, which is still carried on according to the intention of its founder. The new buildings at the corner of Exhibition-road were opened in 1903. The number of students in the classes in 1910-11 was 60, and the number in 1911-12 (up to February, 1912) was 74.

The Council's grant for 1911-12 was £249, of which £84 represented the cost of teaching services provided by the Council.

(xi.) The School of Nautical Cookery, Sailors' Home, Dock-street, Stepney, E.

The School of Nautical Cookery at the Sailors' Home was established in October, 1893, when the Technical Education Board decided to make a grant of one-half the cost of the classes, but not exceeding £75, for the period to 31st March, 1894. The proportion of the total cost of the school which the Council was prepared to meet was raised to 75 per cent. in 1905, and the maximum was also increased up to £290 ultimately, at which figure it stood during the three years 1909-12.

The need for schools of cookery for ships' cooks was admitted by a conference of shipowners of the United Kingdom in 1892, when preparing a "provision scale." The Merchant Seamen Provision Bill of 1893 proposed to make this scale a statutory minimum; and, although the bill did not become law, the scale was adopted to a certain extent. In January, 1907, a statutory scale of provisions, as required by the Merchant Shipping Acts Amendment Act, 1906, came into force, and the requirement that cooks for foreign-going ships should be duly certificated became operative after the 30th June, 1908.

At the Sailors' Home the provision of additional accommodation had become imperative, and the Council, in 1906, without waiting for the passing of the Act above referred to, decided to make a grant of £480 towards the cost of extending the school so as to accommodate at one time 30 pupils, instead of eight as previously.

That this development was justified is seen by the fact that, whereas in 1903-4 and 1904-5, 23 and 16 certificates only were awarded as against enrolments of 183 and 153 respectively, of the 113 pupils who entered the school during the three months ended 31st December, 1908, 50 were awarded qualifying certificates, and 8 obtained preliminary certificates.

As the temper and efficiency of a crew depend a good deal on the capacity of the cook, and the extent and character of his stores, there ought to be a future full of success before the school.

(xii.) The St. Bride Foundation Institute.

The St. Bride Foundation Institute was one of the objects of a scheme framed in accordance with the City of London Parochial Charities Act, 1883, and approved by Her Majesty in Council on 23rd February, 1891. It comprises a technical printing school, libraries, reading and lecture rooms, with a gymnasium, and swimming and washing baths. Printing classes were established in October, 1894, and have been aided since their inception by the Technical Education Board and the Council.

The school has an exceedingly valuable technical library attached. The additions made to the library from year to year involve considerable expenditure, and have had the effect of making the library a unique depository of records and specimens in connection with the printing trade.

An interesting and valuable feature of this printing school is the close relationship existing between it and the L.C.C. School of Photo-Engraving and Lithography, the late principal of the latter institution, Mr. A. J. Newton, having acted also as part-time principal of the St. Bride School from May, 1910, up to the date of his resignation of the dual appointment in September, 1912. The number of students is 457; the school receives a grant of £400 from the St. Bride Foundation, and from the Council a grant which amounts to £700 for 1912-13.

(xiii.) The St. Martin's School of Art.

The St. Martin's School of Art is probably one of the oldest schools of its kind in London, having been founded in 1854. Situated in Castle-street, Endell-street, W.C., in the book-production district of London, the school has maintained a close relationship with the trade in the design of book plates, posters, etc., for all commercial purposes, whilst modelling has always been a strong feature.

A characteristic of this school is the large number of pupils who are drawn from the elementary schools of the district. Scholarships are given to such of these pupils as show a distinct ability for drawing, to enable them to continue their studies and to fit them for various artistic occupations. During the past few years the principal has been able to place 76 of these deserving students in various occupations connected with the artistic crafts.

The question of improved accommodation has for some time engaged the attention of the school committee and the Council. It has now become urgent, in consequence of the termination of the tenancy of the school premises to take effect at Christmas, 1912.

The number of students is 368, whilst the Council's annual grant is about £800.

(xiv.) The Trades Training Schools, Great Titchfield-street, W. (near Portland-road station).

The institution comprising the Trades Training Schools has been established by the Worshipful Company of Carpenters, in conjunction with the Worshipful Companies of Joiners, Painter Stainers, Plasterers, Tylers and Bricklayers, and Wheelwrights, in a building leased by the Worshipful Company of Carpenters. The instruction is provided only for those engaged in the trades concerned, and includes theoretical and practical classes in the

trade subject with classes in technical drawing, etc., where necessary. Classes are held in the following subjects—

Carpentry.	Plumbing.	Tilers' and bricklayers' work.
Joinery.	Smithing.	Wheelwrights' work.
Handrailing.	Stone carving.	Wiremen's work.
Painting and decorating.	Modelling from life.	Wood carving.
Plastering.		

These schools are managed by a committee of the Worshipful Company of Carpenters. The number of students is about 300.

(xv.) *The College for Working Women, 7, Fitzroy-street, Fitzroy-square, W.*

This institution was established in 1874, and incorporated, 1880. The aim of the college is by means of systematic teaching, given in evening classes, to supply to women occupied during the day a higher education than has been generally within their reach. The curriculum embraces general literary and commercial subjects, first aid, and hygiene. Various courses of lectures are provided. There exist in connection with the social work of the college a benefit club, which provides members with sick benefits and the services of a doctor in case of illness, a holiday guild, now in its twenty-ninth year, and a penny bank.

(xvi.) *The Campden Technical Institute, Lancaster-road, North Kensington.*

This Institute caters for students between the ages of 12 and 40 years resident in the borough of Kensington who are in attendance at, or have attended, a public elementary school. Women students are prepared for the technological examinations of the City and Guilds of London Institute in dressmaking, millinery, plain needlework and cookery. Ambulance students are similarly prepared for the St. John's Ambulance Association examinations.

Classes in shorthand, typewriting, physical drill and woodwork (including drawing) are also held. All students attending the woodwork class are expected to take one subject in drawing. No fee for the latter subject is charged to boys learning only the drawing required in connection with woodwork.

No students under 15 are admitted to the shorthand classes unless they have passed a preliminary test, and under no circumstances is any student under fourteen admitted to these classes.

The number of students during the past session was 953.

(xvii.) *The School of Art Woodcarving, 39, Thurloe-place, South Kensington, S.W.*

The School of Art Woodcarving, which is under Royal patronage, was established in 1878 for the encouragement of the art of woodcarving in this country as a branch of the fine arts. The subjects taught are woodcarving, and, in relation thereto, design, modelling, history of art, geometrical and outline drawing.

In 1900, when the committee first applied for a grant from the Technical Education Board, the school was temporarily accommodated in the east end of the north gallery of the Imperial Institute, the space occupied by the trade exhibits at the English Education Exhibition in January of that year. At that time the new buildings of the Royal School of Art Needlework in Exhibition-road were nearing completion, and an office and three studios in those buildings were let on lease to the committee of the School of Art Woodcarving. The Board's first grant of £250 was made for one year from the date of entering upon the new premises.

At the beginning of the session 1908-9 the school moved into its present premises at No. 39, Thurloe-place, South Kensington, where it occupies the upper rooms. For several years the Council aided the school to the extent of £400 a year, together with the services of teachers provided at a cost which amounted finally to £150 a year, but in 1911-12 its grant was assessed at £450, whilst it now stands at £630. The last variation in the amount of the Council's money payments was necessitated by the appointment directly by the school committee of four visiting teachers, whose services were, previous to the session 1912-13, provided by the Council. In February, 1912, there were in attendance at the school 61 day and 35 evening students.

12. Settlements and clubs.

(i.) Settlements.

A settlement is a combination of residential club, school and missionary society established in a crowded industrial quarter of a great city. Although settlements were primarily intended to afford university graduates an opportunity of sharing their educational advantages with those who have been less fortunate, men and women with other training are now living in them or are attached to them on an equal footing. The objects of the settlement have widened to include many opportunities of civic activity which can best be achieved by living near the problems which need to be faced.

Settlements
and clubs.
(i.) Settle-
ments.

The best known settlements are—

Toynbee Hall, 28, Commercial-street, E.
 Oxford House, Bethnal-green.
 Cambridge House, Camberwell.
 Bermondsey Settlement.
 Passmore Edwards Settlement, Tavistock-place, W.C.
 Browning Hall, Walworth.
 Christian Social Union Settlement (Maurice Hostel), Hoxton.
 Ratcliff (Women's) Settlement.
 Women's University Settlement, Southwark.
 Lady Margaret Hall Settlement, Kennington-road.
 United Girls' School Settlement, Peckham.
 Talbot House Settlement, Camberwell.
 St. Mildred's Settlement, Bethnal-green.
 St. Hilda's Settlement, Shoreditch.
 Creighton House, Fulham.

The interests of the residents lead them out in various directions, some to become members of neighbouring clubs, some to take part in the scout movement, some to promote entertainments, some to join in working-class organisations, and some to associate themselves with wages boards, care committees, councils of social welfare, and even with the more public bodies such as boards of guardians and borough councils. In some respects the women's settlements are doing more work than those of the men. The men residents are largely engaged in professional work during the day, whereas many women residents can give their whole time to the work.

Variety of
 aims and
 methods.

The immediate aims of individual settlements differ much, and consequently different branches of social work attain special prominence. One does much more direct educational work in literature and art. A second develops political education, forming committees of enquiry which collect materials for legislation. Much good work has been done by some settlements in organising annual flower shows and garden competitions, and the stimulus given in this way has done much to change the aspect of certain poor neighbourhoods. Another feature common to nearly all settlements is the "poor man's lawyer." At Mansfield House Settlement, for instance, three rooms are set apart on certain nights of the week to hold the large number of people who come to receive advice on almost every conceivable subject, family quarrels, marriage and divorce, insurance, compensation and pensions. On these occasions much practical advice and valuable lessons in arbitration are given.

The common life of the residents has thus developed many activities, and in many cases these activities have resulted in making the settlement a centre of evening education, such as the Working Men's College or Morley College. Generally the educational aim is to enlarge the outlook of the students, so as to enable them to understand and discharge the duties of citizenship. Subjects connected with social reform, constitutional history, economics, architecture, literature, classics and modern languages, science, art and commercial subjects, are much sought after; and the attendance is particularly good. There are special classes in music, dancing, home nursing, nature study and physical education for those who want them. Many of the teachers are resident, and voluntary.

The method of associating together the teachers and the taught has led to the formation of travelling, natural history, antiquarian, and literary societies, which, in many cases, have developed strong independent existence. The debates which some settlements have encouraged, in which the opener is allowed to put his views before the audience, have proved to be of great educational value. The opening address becomes, in fact, a short lecture, and the debate that follows brings out the points of the problem.

It would be difficult to over-estimate the influence of such institutions on the thought of London or to fail to recognise their share in promoting the advance of evening education work within the county.

(ii.) Clubs.

(ii.) Clubs

Scattered all over London may be found hundreds of clubs for girls and boys; some under the general management of long experienced social workers like the Hon. Maude Stanley, the Hon. Lily Montagu and Mr. Cyril Jackson, and many "run" by head masters and head mistresses of elementary schools. The greater number are associated with some church, mission or society. Among these clubs are many rendering educational service of a very special kind. The best of them illustrate on a small scale the activities of the settlements—educational and recreative work, industrial teaching, and a labour bureau, medical and health work in club and district, country holiday organisation, library, and athletic club, the "poor man's lawyer," and a restaurant. The type of girl attending clubs varies from the West-end shop girl to the rougher kind of factory type; and there is little doubt that few (if any) of these could be induced to attend the ordinary evening school. The clubs are social and recreative, but occasionally they seek the Council's help, and teachers are provided under certain conditions. (See the Council's publication "Provision of Teachers for Clubs and Institutions within the Administrative County of London.") Under this scheme 573 (297 in 1905-6) classes (chiefly for sewing, cooking and laundrywork, singing, swimming, gymnastics, home nursing, first aid, etc.), were supplied during the session

1910-11. It is estimated that the number of students attending classes for which teachers are provided by the Council has increased from about 6,000 in 1905-6 to 12,000 in 1911-12.

The mainstay of the clubs is the personal influence of some manager, who, by kindling friendship and the desire for good among the members, succeeds in promoting educational effort and in developing application and character. The social relations established between the girls themselves and their club managers aids and unifies the educational work of the classes. In some instances subsidiary trades have been taught, such as flower-making at the West Central Club (Holborn) and carpet-making at the Butler-street Club (Whitechapel) and the Roehampton Club (Lambeth).

The managers of the clubs deserve the fullest encouragement, for it must be remembered that, while the assistance from the Council, and in some cases from the Board of Education, covers a considerable proportion of the cost of teaching and equipment, the expenditure on club premises, heating, lighting and establishment expenses has to be met entirely out of voluntary contributions.

Boys' clubs are similar in character, but apparently not so numerous. The special feature of the Old Northeyites' Club is that no lad is allowed to come to the social gatherings who has not attended at least two evening school classes during the week.

(iii.) Other organisations.

The domestic economy taught in the day school may be too easily forgotten between school years and marriage if none is put into practice during the interval. Stress of poverty which sends a girl into unskilled employment and heedlessness of the future which such life begets, obliterates such knowledge of domestic arts and health laws as a girl may have acquired. Re-teaching and re-learning becomes a pressing necessity when the girl reaches motherhood. It is to meet this need that schools for mothers have been started. Few exist as yet. Their work is most important. The need of their existence is significant of the wastefulness of the conditions of modern life.

Schools
for mothers.

Among other associations that have sought the assistance of the Council's organisation, but not monetary help, may be mentioned the Boy Scouts, the Mansion House Advisory Committee of Associations for Boys, and the National Association of Old Scholars' Clubs. The leaders of the Boy Scout movement in London have found a most useful ally in the Council's evening schools.

Boy
scouts, &c.

XVIII.—CHANGES IN THE SUB-COMMITTEES CONCERNED.

In 1904 the organisation of education (other than elementary) was entrusted by the Education Committee to three sub-committees, namely, the Higher Education and Scholarships, the Polytechnics and Evening Schools, and the Training of Teachers Sub-Committees. The work of these sub-committees continued without change until March, 1906, when the Selection Sub-Committee, in reporting to the Education Committee on the constitution of the sub-committees for the ensuing year, drew attention to the desirableness of amalgamating the Higher Education and Scholarships and the Training of Teachers Sub-Committees on the ground that their work was cognate and that amalgamation would conduce to greater efficiency. The recommendation of the Selection Sub-Committee was agreed to by the Education Committee, the new sub-committee being named the Higher Education Sub-Committee.

The sub-
committees
dealing with
evening
education.

In March, 1910, a further change took place. The Higher Education Sub-Committee and the Polytechnics and Evening Schools Sub-Committee, which had consisted of 12 members each, were amalgamated under the name of the Higher Education Sub-Committee, consisting of 17 members. The change was the result of a recommendation made by the General Purposes Sub-Committee to the Education Committee in February, 1910. The reasons which led to the Sub-Committee's conclusion were as follows—

(i.) The administration of the Council's scholarship scheme was within the reference of the Higher Education Sub-Committee. The tendency to increase the number of technical scholarships seemed, however, to call also for the consideration of the Polytechnics and Evening Schools Sub-Committee.

(ii.) Questions relating to schools of the university were, with one exception, considered by the Higher Education Sub-Committee, the Polytechnics and Evening Schools Sub-Committee dealing with the exception—the Imperial College of Science and Technology. The General Purposes Sub-Committee were of opinion that all aspects of higher education should come under review by one sub-committee.

(iii.) The number of sub-committees had, during the year, been increased by the creation of the Children's Care (Central) and the Endowments Sub-Committees. The General Purposes Sub-Committee felt that there were more sub-committees than the limited number of members available were able properly to attend.

In order, however, to relieve the new Higher Education Sub-Committee, the Education Committee, on the recommendation of the General Purposes Sub-Committee, transferred to the Teaching Staff Sub-Committee the work of interviewing applicants for appointments as teachers of evening schools and institutions, hitherto performed by the Polytechnics and Evening Schools Sub-Committee.



List of Chairmen and Vice-Chairmen.

Sub-Committee.	1904-5.	1905-6.	1906-7.	1907-8.	1908-9.	1909-10.	1910-11.	1911-12.
(1) Higher Education and Scholarships								
Chairman ...	Sidney Webb.	Sidney Webb	—	—	—	—	—	—
Vice-Chairman	Sir Chas. Elliott.	Sir Chas. Elliott	—	—	—	—	—	—
(2) Polytechnics and Evening Schools								
Chairman ...	Hon. F. Thesiger (now Lord Chelmsford)	{(a) Hon. F. Thesiger (now Lord Chelmsford) (b) John Piggott	W. S. Sanders	Lord Henry Bentinck	Lord Henry Bentinck	Frank Goldsmith	—	—
Vice-Chairman	John Piggott.	{(a) John Piggott (b) W. S. Sanders	Dr. E. B. Forman	W. S. Sanders	Frank Goldsmith	H. J. Clarke	—	—
(3) Training of Teachers								
Chairman ...	Graham Wallas	Graham Wallas	—	—	—	—	—	—
Vice-Chairman	Mrs. Bryant	Mrs. Bryant	—	—	—	—	—	—
(4) Higher Education (before amalgamation with (2))								
Chairman ...	—	—	Sidney Webb	Cyril Jackson	Lt.-Col. A. C. E. Welby	S. J. G. Hoare	—	—
Vice-Chairman	—	—	Mrs. Bryant	Sidney Webb	Sidney Webb	Sidney Webb	—	—
(5) Higher Education (after amalgamation with (2))								
Chairman ...	—	—	—	—	—	—	{(c) H. J. Clarke (d) Hon. Gilbert Johnstone	{(e) Hon. Gilbert Johnstone (f) Miss Susan Lawrence
Vice-Chairman	—	—	—	—	—	—	S. J. G. Hoare	R. M. Sebag Montefiore

(a) March to October, 1905.

(b) October, 1905, to March, 1906.

(c) March to December, 1910.

(d) January to March, 1911.

(e) March to July, 1911.

(f) July to December, 1911.

PART II.: SUBJECTS OF INSTRUCTION.

XIX.—HIGHER COMMERCIAL INSTRUCTION.

(Memorandum by Mr. T. C. Jackson, LL.B., district inspector.)

Of the 60 subjects taught in the L.C.C. evening schools, fully 20 of them may be described as commercial in character, *e.g.*, modern languages, commercial geography, industrial history, etc. It is not my purpose to discuss all these subjects; my remarks will be limited to the consideration of the teaching of six, viz., accountancy, banking and currency, machinery of business, bookkeeping, and law and economics. These topics undoubtedly come within the sphere of higher commercial instruction; at the same time I do not claim that higher commercial education is synonymous with the acquisition of knowledge of them alone. The undermentioned statistics give an idea of the number of classes where these subjects are taught, and the number of students who take advantage of the classes. It will be seen that in nearly all cases there has been an increase in the number of classes and in all cases there has been an increase in the number of students between the years 1904 and 1911—

Higher commercial instruction. (Memorandum by Mr. T. C. Jackson).

Subject.	Date.	Number of Schools.	Number of Students.	Student hours.	Number making 14 hours.
(1) Accountancy	1904-5	5	112	2,665	69
	1910-11	25	828	28,735	542
(2) Banking & Currency	1904-5	10	160	2,391	79
	1910-11	13	316	6,584	171
(3) Machinery of Business	1904-5	20	420	9,304	217
	1911-12	21	588	10,708	287
(4) Book-keeping	1904-5	295	16,961	431,496	8,979
	1910-11	223	18,216	470,267	10,298
(5) Law	1904-5	25	667	15,578	410
	1910-11	29	705	15,732	396
(6) Economics	1904-5	9	177	3,523	88
	1910-11	21	487	10,139	236

A few words regarding each of these subjects may be apposite.

Probably some may wonder why an education authority should attempt to popularise the teaching of law in evening classes. In the first place the subject is undoubtedly a difficult one, and perhaps best fitted for a student who has otherwise acquired a really sound general education. It is well known that the profession of the law attracts really capable men who find in it a full exercise for all their talents. Again, it is well known that the knowledge of a little law is a somewhat dangerous acquisition; in practice the truth of this statement has frequently been demonstrated by the attempts of amateurs to draft conveyancing and other legal documents. Admittedly only a small modicum of knowledge can be acquired in a winter's course extending over perhaps 30 weeks. On the other hand, everybody has legal rights and obligations: further, "*ignorantia facti excusat, ignorantia juris non excusat.*" The business man in particular is daily confronted with legal rights and obligations. It is the object of the Council's classes to teach business men the elements of commercial law: it is not intended to make them lawyers, but to instil into them certain principles, enabling them to guard against many and varied legal pitfalls. Fortunately what is known as commercial law is one of the easier branches of the subject, and it is submitted that a competent lecturer can, in the course of 30 lectures, give useful and beneficial advice to young business men respecting such topics as the nature of a contract in general, the rights and duties of a principal and agent, the more salient features of the law appertaining to the carrying of goods by land and water, the legal principles underlying the sale of goods, the legal aspects of bills, cheques and notes, and the elements of the law of partnership and of joint stock companies.

The students attending the Council's commercial law classes are generally engaged in insurance offices, banks and commercial houses; and as a class they are no doubt eager students and desirous to progress in their respective spheres of labour. A subject of this kind lends itself readily to collective teaching, and on the whole it is submitted that they are well taught by competent teachers who are either duly qualified barristers or solicitors in practice. Of course, the number attending such classes (say 700 per annum) is small compared with the total number of young men engaged in City houses; but it must be remembered that many of them are the best of their class—young men who are intent upon progressing in life, and who doubtless will have others under their control and frequently be in responsible positions requiring sound judgment and prompt decision. It is submitted, therefore, that such classes are likely to be more beneficial to the commercial community than the comparatively small number attending them would lead one to suspect.

A few classes are devoted to the teaching of municipal law. The students attending them are mainly the employees of county, borough and district councils. It may be thought that

such a composite class of students could not receive really much useful information in the course of a winter's session. What might appeal to a clerk employed in the office of a county council would not have the same interest for one employed in a district council, and it may be frankly admitted that the subject is so wide that real difficulty is encountered. At the same time, the students are keen to gain knowledge, and hence it may be submitted that such valuable help and direction can be given to them in reading as to justify the commencement and maintenance of these classes.

Banking
and
currency,
machinery
of business
and
economics.

The students attending classes in banking and currency have generally a definite objective in view; as a rule they intend to become candidates for the Society of Arts examination in that subject, or are preparing for the examinations of the Institute of Bankers. Similarly many students take up the study of economics, because it is in the curriculum of some examination for which they are preparing. Doubtless others study these subjects because they realise their importance to a man who wishes to be a leader in commerce. As in the case of law, the number of students attending classes in these three cognate subjects (say, some 1,400 per annum) is small compared with the total number of clerks engaged in the City of London; but, again it may be remarked, that these students are often the best members of their class, young men with ambition, who intend to succeed and to be leaders in the commercial world. On the whole there has been a gratifying increase in attention to these subjects, and it may be remarked that about fifteen years ago there were scarcely a dozen professors or lecturers in economics throughout England.

The influence of such classes is probably greater than one would be led to expect from the numbers attending. Undoubtedly within the last ten or fifteen years there has been considerable improvement amongst commercial men in regard to their scientific knowledge of the production, distribution and exchange of wealth, the function of money, the part played by credit and the interaction and inter-dependence of international trade. The establishment of degrees in commerce by several of our universities has no doubt aided this improvement.

The teaching of such subjects is largely of a collective character, and I believe that it is much more exact and scientific than it was when I first visited evening schools in the metropolis some 13 years ago. In this connection one other fact should be here recorded. For several years past it has been one of my duties to read in the early part of the year the forms of applicants for instructorships in these subjects under the Council. Ten or twelve years ago one had to be content with rather doubtful credentials and somewhat slender knowledge on the part of applicants. No such difficulty is now encountered, and in regard to any of the six subjects herein discussed, the Council has no difficulty in attracting really well qualified men. Concurrently with this improvement in the credentials of the teacher, there has been a marked advancement in difficulty in the commercial examinations conducted by the Society of Arts and the London Chamber of Commerce; and, further, in the same interval, many commercial professions have organised examining boards and instituted searching examinations. In this connection, in addition to the two branches of the accountancy profession, there may be quoted the Institute of Bankers, the Chartered Institute of Secretaries, the Institute of Auctioneers and the Institute of Surveyors.

Account-
ancy and
book-keep-
ing.

A perusal of the statistics above quoted will show that the number of accountancy classes has increased five-fold and the number of students more than seven-fold. It would seem that there has been a greater relative increase in this subject than any other; it may be doubted, however, whether the figures are an exact indication of the true position of affairs. It may be asked what is the meaning of the word "accountancy." In some cases it means nothing but advanced book-keeping, and in the past it is to be feared that a mercenary element has crept in in this connection, for it is well known that a teacher of an accountancy class was paid 10s. 6d. per evening, whilst the teacher of book-keeping was paid at the rate of 7s. 6d. In other cases, the name "accountancy" meant a class in accounting and banking, the name used by the Society of Arts for a special kind of book-keeping, more particularly bank book-keeping; whilst in a few cases the connotation of the term may have embraced the elements of auditing, a subject entirely different from the two just mentioned. In my opinion the use of the word accountancy is distinctly unfortunate. It is a general term likely to be misunderstood; perhaps most frequently meaning advanced book-keeping. I have on a former occasion suggested that we should drop the word entirely, and we might classify our classes as follows—(1) elementary, (2) intermediate, and (3) advanced book-keeping; and (4) accounting and banking. If there be any demand for a class or classes in auditing, a distinct subject required practically only by professional accountants and dealing more particularly with the legal aspect of their rights and duties as auditors, there would seem to be no objection to starting such classes; but it is very desirable that terms should be used which have an exact significance.

In regard to book-keeping, there is perhaps little need to enter into any discussion on the teaching of the subject. This has recently been done in two reports, one by Mr. L. C. Cropper and another by the present writer. Both reports had much in common, and both advocated certain changes in regard to the teaching of the subject; these changes involve a reconsideration of the salary paid to evening school teachers, the credentials that should be expected from teachers, and contained certain advice respecting the use of text-books and the method of teaching. These reports have been discussed by various committees of the Council, and it is confidently submitted that the adoption of the advice tendered in them will lead to an improvement. One point revealed by the statistics quoted above may be noticed here, viz., that there has been a diminution in the number of schools taking this subject in the past seven years, a drop from 295 to 223; whilst at the same time there has been an increase both in the number of students, the number of hours, and in the number of students who have attended fourteen

hours and upwards. The pruning knife has been judiciously employed. Probably there is scope for a little more use of it in this subject and in shorthand, and room for still greater concentration of classes in these subjects in the commercial centres.

T. C. JACKSON.

XX.—SHORTHAND.

(Memorandum by Mr. T. C. Jackson, LL.B., district inspector.)

Shorthand has always been the most popular subject of instruction in London evening schools, and it still retains the premier position from the point of view of the number of students attracted by it. The undermentioned statistics indicate that there has been a steady growth in the demand for instruction in shorthand within the last seven years—

Session.	No. of schools.	No. of students.
1904-5	304	30,240
1910-11	261	33,768

Shorthand
(Memorandum by
Mr. T. C.
Jackson).

The reason for this popularity is manifest, for in the past the possession of the art of writing shorthand was a credential that enabled the embryo clerk to obtain employment readily. Perhaps the possession of this qualification is not such an easy passport to employment as it was in years gone by. In recent times phonography has had considerable competition to contend against. The art of typewriting, *e.g.*, has so much improved that many typists possess such a degree of manual dexterity that they are able to take down commercial correspondence direct. Again, it is well known that within quite recent times attempts have been made to so improve the phonograph and other machines of a like class, that business men can make these machines do the work of a shorthand clerk. At present, however, these attempts have not succeeded in any measurable degree in ousting the human element from the office.

Educational experts have not infrequently looked somewhat askance at the claims of shorthand to find a place in the curriculum, and have objected to it on the ground that it is utilitarian in character and non-educational. Whatever force there may be in the first objection in so far as young day school pupils are concerned, surely there can be none in regard to evening pupils. If we must exclude subjects from evening schools on account of their utilitarian character, we might as well close the schools at once; and it may be reasonably doubted whether the latter objection is a fair one. It can be said with truth that the study of shorthand is a difficult subject. It involves a training of both hand, eye and brain; moreover, it requires a considerable amount of perseverance before any useful speed is attained. Any subject which requires the free use of such faculties, accompanied by much hard work, should not lightly be decried as non-educational.

Whatever the merits or demerits of the subject, the fact remains that there is an exceedingly great demand for instruction in it, and it may be well to consider how this demand can most effectively be coped with.

In the first place, we may remind ourselves of the fact that there are many systems of shorthand. Three, however, appear to be favourites amongst London students, and one of the three is undoubtedly the predominant partner, as it attracts about 88 per cent. of the shorthand aspirants. It is not my intention to enter into any discussion regarding the relative merits of the three systems of shorthand that are taught in our schools. It may, however, be premised that all three systems are difficult, and one of them particularly so. Possibly time will show that they are capable of improvement, and at any rate an open mind should be maintained regarding their respective merits or those of younger competitors. All the three systems taught are efficient systems, and the problem for the young beginner is, which system will enable him to attain a given end most quickly and with the least expenditure of time and effort.

No doubt many beginners find the subject much more difficult than they anticipated, and this in part may explain the great percentage in the falling off in attendance in shorthand classes, and the still greater percentage of students who do not in the course of a session or two attain a reasonable speed. Frankly, the appearance of the shorthand registers two months from the start of the session is often discouraging. I may be wrong in the opinion I hold as to the reason for this shrinkage; but it seems to me that wrong methods obtain in regard to shorthand instruction. I have observed that the best results are obtained where there is collective instruction, a type of pupil well grounded in the English language, and opportunity to attack the subject with energy, giving a good deal of time and practice to it. On no other grounds can I account for the success attained by the students of certain private institutions. In them a student will study shorthand intensively, if the word may be permitted, for a period of six or seven months, probably giving two or three hours per day to the subject. Similarly in many of our commercial centres a student has the opportunity of taking the subject three or four nights per week, and I am strongly of opinion that the progress of such a student in four or five months is much greater than would be the case if he had spent a greater amount of time on the subject spread over two or three sessions. Again, it is doubtful whether many students are wisely advised in taking up the subject. Many beginners are very imperfectly instructed in English, and it is rather the fashion for the moment to tell a youth of this type that he must improve his English simultaneously with his study of shorthand. Obviously it is doubtful whether such a student is well advised in starting shorthand. My contention is that it is much better to educate the pupil first in the use of his own language, and then when he has attained sufficient proficiency therein, let him give nearly the whole of his spare time and attention to shorthand for five or six months, and if possible in a class where he is taught collectively with other students in a like position to himself.

On the whole, I cannot help but think that there is a good deal of waste in regard to evening instruction in this subject. Large numbers enter at the beginning of a session, few remain to the end, and still fewer attain any speed with a commercial value. The fact that a lad has spent 14 hours in an evening school in studying shorthand is little test of whether any useful work has been done. Shorthand cannot be compared with a subject like English literature. A student might attend a single lecture on one of Shakespeare's plays and be greatly benefited; not so with shorthand, even 14 lessons will be useless unless the subject be persistently followed up until some reasonable proficiency is attained.

Perhaps it may be useful to consider the value of the subject to a pupil when he has become proficient. No doubt the art is useful to anyone engaged in any literary occupation, but it is to be feared many of those who wish to make a living out of shorthand are often ill-paid. Shorthand alone is not by any means sufficient to make a business success; the man who can merely take down a verbatim report is not likely to attain any great success; other qualities and other qualifications are needed in addition; possibly too in some few cases the possession of the art of shorthand may be a distinct danger to a youth of ability. "Once a shorthand clerk, always a shorthand clerk," may not perhaps be a maxim that is strictly true, but it is a maxim containing some truth. It is much to be feared that shorthand, unaccompanied by any other qualification, is likely to lead to ill-paid work, resulting in the possessor of the art being shunted off into a side line in commerce from which he may find it difficult to extricate himself.

T. C. JACKSON.

XXI.—HANDICRAFT IN EVENING SCHOOLS.

(Memorandum by Mr. S. Barter, inspector of wood and metal work.)

Handi-
craft. (Me-
morandum
by Mr.
Barter.)
Woodwork.

The work done by men and lads at the evening schools under the broad designation of "handicraft" may be divided into two chief classes, viz., woodwork and metalwork.

As regards woodwork, it is found that these classes are most popular, and the pupils are of the right class to benefit by the instruction given. They include a large proportion of pupils not directly connected with a woodwork trade or craft, but it is to be borne in mind that instruction to this class has a far-reaching influence on the home, and the drawing and construction, with which it is associated, cannot fail to make the individual himself a more useful man in every-day life. To the craftsman immediate benefit is the result—the standard is raised and greater power of intelligent expression follows.

The work is comprised of a series of simple exercises, and of making articles of personal utility, and small pieces of furniture, etc.

During the past few years, the whole work has greatly improved, particularly so, from a constructional point of view. There is also an improvement in the designing features, but this is not so well marked as the construction.

As regards attendance, details up to the session 1910-11 are given below—

Woodwork.

SESSION.	No. of Schools at which taught.	No. of Students taught.	No. of hours attended.
1904-5	224	11,624	246,727
1905-6	222	12,547	250,011
1906-7	212	9,047	206,162
1907-8	202	8,916	229,455
1908-9	201	9,146	238,276
1909-10	190	9,163	206,841
1910-11	202	9,703	256,292

It will be observed that the number of pupils has decreased since 1904, but it will also be seen that, notwithstanding this fact, the number of hours worked is greater and, therefore, the individual pupil is now more earnest in his work, and more regular in his attendance.

Metalwork.

As to metalwork, these classes are of great general value, they are largely attended by men directly engaged in the metal-working trades, or in trades with which metalwork is associated. This applies very specially to the Woolwich and Greenwich districts—students attend expressly for the purpose of technical improvement; opportunities for this in the trade shops are limited.

It is satisfactory to find such useful work being carried on. Improvement has gone on steadily from year to year, and it will be difficult to exceed the high standard which has now been reached, with the time at the disposal of the pupils. These results are largely due to the report on manual training of the Education Committee in 1906, which led to the re-casting of the syllabus and gave better opportunities to the teachers with improved organisation.

Details of attendance are given below.

Metalwork.

SESSION.	No. of Schools at which taught.	No. of Students taught.	No. of hours attended.
1904-5	32	1,174	22,026
1905-6	41	1,712	29,552
1906-7	24	584	11,571
1907-8	24	556	14,948
1908-9	23	529	12,810
1909-10	25	724	14,426
1910-11	29	709	16,114

The above results could not be attained were it not for the highly qualified teachers in the service. They are drawn from artisans, and also from specially trained teachers, educated under the Council's authority. Teachers.

With few exceptions, they hold the final certificate of the City and Guilds of London Institute for manual training, and qualifications in practical plane and solid geometry. Many hold, in addition, high qualifications in science and art, as well as special qualification in a trade or craft. The number of instructors engaged in the work during the session 1911-12 is given below—

	Total number engaged in Evening School Work.	No. of Artisan Instructors.	No. of Ex-Pupil Teachers Instructors.	No. qualified Board of Education requirements.	Not qualified.
Instructors ...	204	175	*32	266	4
Assistant Instructors	66	63			
	270		270	270	

* Includes one Elementary teacher.

The number of evening school woodwork centres is 192; the number of classes, 483.
 ,, ,, metalwork ,, 15; ,, 41.

S. BARTER.

XXII.—DRESSMAKING, MILLINERY AND NEEDLEWORK CLASSES IN EVENING SCHOOLS AND CLUBS.

(Memorandum by Miss M. Cade and Miss C. R. Gordon, divisional superintendents of domestic economy.)

In February, 1905, we first visited the evening dressmaking, millinery and needlework classes, and reported that—

Number on roll—These classes followed the usual regulations for ordinary school subjects and were generally much too large to be taught efficiently.

Attendance—The classes began as a rule at 7.30 p.m., and as almost all the students left work at 7 p.m. or later, in every case it was found that an extremely small number were present for the first marking at 7.45, or thereabouts; many keen students came unavoidably very late, some failing to gain the second mark given about 8.25 p.m.

The enrolment at the beginning of the session was generally very large, but a comparatively small number were constant in attendance. Even where the average attendance was sufficient, it was maintained by the continual admission of new students, and under these conditions sustained systematic instruction was impossible. The length of a lesson might be one or two hours.

Closing number—Classes were closed if the average attendance fell below 6 per hour for three consecutive weeks.

Qualifications of teachers—Dressmaking teachers were required to hold a dressmaking diploma from a training school, or one of the following certificates—the late School Board's, Tailor's, Academy's, Mrs. Grenfell's, City and Guilds of London Institute ordinary, London Domestic Economy Examination Board's, Cosmopolitan Association's, Miss Prince Brown's or Miss A. J. Reeve's. Needlework and millinery classes were usually taken by teachers holding Elementary school, City and Guilds of London Institute ordinary, or the London Institute certificates, or trade persons with no special teaching qualifications. It will be noticed that chart systems of cutting were allowed.

Scheme of work—*Syllabus of lessons*—*Record of individual work*—No scheme of work had been issued, and in only a few cases had a syllabus of lessons been drawn up by the teacher showing the work she proposed for the session; a record of individual work was rarely kept.

Dress-
making,
millinery
and needle-
work. (Me-
morandum
by Miss
Cade and
Miss Gor-
don.)

Practical work of a very mixed and unclassified kind was done at all the lessons; demonstrations were given very rarely, and at the discretion of the teacher. The making of garments for wear was generally considered of more importance than the training in useful workmanship.

The numbers of students in the dressmaking, needlework and millinery classes for the same years were—

	Dressmaking.		Millinery.		Needlework.	
	No. of Schools.	No. of Students.	No. of Schools.	No. of Students.	No. of Schools.	No. of Students
Session 1906-7...	212	13,767	130	5,382	55	2,247
„ 1910-11	192	13,152	159	5,828	53	2,651

It will be observed that there has been a decrease in the number of schools at which dressmaking is taught. This decrease may be explained by the fact that 47 fewer evening schools were opened in 1910-11 than in 1906-7.

Instructresses employed—

1906-7.		1910-11.	
Dressmaking.	Millinery.	Dressmaking.	Millinery.
300	130	450	200

Classes were also held in clubs and similar institutions under practically the same regulations which govern evening schools. The numbers for these were—

	Dressmaking.	Millinery.	Needlework.
Session 1905-6	67	13	20
„ 1910-11	90	21	37

Between 1906-12 the following important changes have been made—

(1) *No. on roll*—A maximum number for each teacher has been fixed at fifteen. New students may not be admitted after the fourth meeting of any class in each term, without the permission of the divisional superintendent of domestic economy.

(2) *Qualifications of teachers*.—Teachers must now hold a diploma in dressmaking from a recognised training school, or the City and Guilds of London Institute Evening School Teachers' Certificate, and in other cases candidates are required to prove their fitness both educationally and technically. Chart systems have been abolished.

(3) *Scheme of work—Syllabus of Lessons—Record of Individual Work*—A scheme of work has been issued by the Council, but teachers are required to draw up their own syllabus of lessons, and to keep a record of the work done by each student.

Under these changes the lessons have gained in point and purpose, and, on the whole, great improvement has been made in method and workmanship, but the difficulties in teaching these subjects are great, the attendance is voluntary, some of the pupils resent the more educational way of giving the lessons, and still look upon the teachers as cutters and fitters; others, who have loyally co-operated with their teachers, have made distinct and satisfactory progress, and have become useful and self-reliant workers.

The difference between the work formerly and now received for the City and Guilds of London Institute examinations is a practical demonstration of the improved standard of craftsmanship.

M. CADE, CATHERINE R. GORDON.

XXIII.—MUSIC IN THE EVENING SCHOOLS.

(Memorandum by Dr. Borland, musical adviser and inspector.)

The art and science of music receive attention in various ways, and the organisation includes the following principal types of classes—

(a.) Classes for teachers, and for students of music who probably intend to make professional use of it—

(i.) *Voice production*—The speaking voice is the main object here, but the work done is directly helpful to teachers of singing classes. The child's voice is studied and the syllabus of instruction in singing in day schools is commented upon.

(ii.) *Preparation for teachers' certificates*, such as the School Teacher's Music certificate of the Tonic Sol-fa College, and the certificate for class training of the Royal Academy of Music.

(iii.) *Harmony and Theory of Music*, chiefly attended by students working for examinations.

(b.) Classes in practical music for ordinary students—

(i.) *Vocal Music Classes*—In these classes the ordinary evening student obtains practice in part-singing, and as much training in voice production, sight-singing, and musical theory as the widely differing needs of their neighbourhoods and social grades make possible. Some of the classes are for male voices only and some for female voices

Music.
(Memorandum by
Dr. Borland.)

Classes for
teachers and
students of
music.

Classes in
practical
music.

only; others are mixed, and vary from the small singing classes of 16 to 20 up to the full "choral society" of 60 or more voices. The Council also provides teachers for many clubs of working girls; whose aim is mainly recreation—an aim, it need not be said, perfectly justifiable in itself.

(ii.) *Instrumental classes*—These classes include all grades, from small violin classes, where teaching of the instrument to beginners is the object; small mixed instrumental classes, where the beginnings of concerted performance are taught; and orchestral classes, in the most successful of which there is a representation of most of the instruments of the modern orchestra.

Classes which aim at the performance of concerted music depend for their success upon combined results, as well as upon individual progress. It was consequently felt at an early stage in the history of the evening schools that something beyond the weekly rehearsal was necessary to maintain the students' interest in the work; and also, as no student is refused admission, in a given class there may be, and often is, a curious balance or lack of balance between the voice parts. In order to provide an object for work, and to enable a high grade of music to be studied with prospect of success in performance, a number of choral unions, or combinations of local classes, were called into being, and they have admittedly done much to stimulate the love of good music in London. The areas covered by these unions coincide with the districts of certain numbers of the Council's inspectors. At present they are as follows, and the items of the programmes quoted, and the approximate numbers of band and chorus present at the concerts given in the spring of 1912, indicate the standard aimed at and the size of the forces engaged—

Choral
Unions.

- (1) *West London*. "Israel in Egypt" (selections), and "Hiawatha" (Parts I and II). Band 70, chorus 525.
- (2) *North West London*. "The Erl King's Daughter," "Hiawatha's Wedding Feast," and part-songs. Band 33, chorus 232.
- (3) *Hackney and Finsbury*. "Judas Maccabæus" (selection), "The Wreck of the Hesperus" (MacCunn), and part-songs. Band 152, chorus 1,000.
- (4) *East London*. "The May Queen" (Bennett), and miscellaneous. Band 14 (and organ), chorus 300.
- (5) *Battersea, Clapham, and Wandsworth*. "St. Paul" (selection), and miscellaneous. Band 43, chorus 250.
- (6) *Lambeth*. "The Spectre's Bride" (Dvorak), and miscellaneous. Band 41, chorus 116.
- (7) *South East London*. "Hymn of Praise," and "Acis and Galatea" (selections), and miscellaneous. Band 80, chorus 300.

It will be seen that the numbers taking part in these performances vary greatly, and further examination will show that the areas covered by the unions also vary. It may perhaps be possible in the near future to re-arrange the boundaries so that something like equality of strength may be attained; this is of importance to the finances of the unions because, while the Council provides for the teaching of the music both in the weekly classes and in combined rehearsals, it does not undertake responsibility for the performances. The voluntary committees of these choral unions guarantee the concert expenses, and it is therefore desirable for them to have a sufficient area (though not too large) from which to draw audiences as well as performers.

A serious musical problem is the balancing of the voice parts. The lists disclose an enormous preponderance of female over male voices, and soprano over contralto. It is a question for all who have the welfare of London music at heart, how best to induce young men to continue the interest in music which they, as boys, have shown in the day schools. It is also a duty of the teachers of vocal classes to see that genuine contralto voices are not, through an error of judgment, classified with sopranos in the weekly rehearsals, nor tenors with basses, for important considerations of voice-preservation, and of health itself, call for the exercise of vigilance in this matter. Organisers, however, have to remember that evening pupils, unlike day scholars, are voluntary, and that gentle guidance is the best compelling force in the world. Where so much raising of musical taste and stimulating of musical energy has already been accomplished in a small space of years, there is no need to be fearful of the future. Every season finds the musical material rising, step by step, both in quality and in quantity.

JOHN E. BORLAND.

XXIV.—PHYSICAL TRAINING (MALE AND FEMALE STUDENTS).

(Memorandum by Mr. T. Chesterton, organising teacher of physical exercises.)

In 1904 no syllabus of instruction was followed, neither was the instruction carried on in a methodical manner. In 1905 the Council made an alteration in the supervision of the classes in gymnastics and physical exercises. A syllabus of instruction was drawn up and issued for the use of students and the work began to be taught methodically. In this year there were 123 thoroughly equipped gymnastic centres and 50 classes for physical exercises only. From this year onwards the gymnastic centres increased and the classes in physical exercises decreased, until in 1912 there were 189 of the former and 26 of the latter.

Physical
training.
(Memo-
randum by
Mr. Chester-
ton.)

Equipment.

The gymnastic centres are equipped with the following portable and adjustable apparatus—One horizontal-bar, one pair of parallel-bars, one vaulting-horse, one spring-board, pair of rings, jumping-stand, four mats, climbing-rope and jumping-rope, 36 pairs of dumb-bells,* 25 pairs of sceptres,* 25 pairs of clubs,* 25 wands.*

Instructors.

During the past few years a great improvement has taken place in the instruction given by the teachers engaged. Unqualified and otherwise unsatisfactory instructors have been gradually superseded by thoroughly qualified and capable instructors. Since 1905 no gymnastic instructor or instructress has been engaged unless possessing a certificate of proficiency from some recognised examining body gained by examination. This precaution has resulted in the instruction being more thorough, and it will necessarily improve as time advances.

Description of the classes.

With but few exceptions, the gymnastic classes are held for two hours, and the time is generally utilised as follows—The first 10 minutes are occupied in calling the roll, registering new students, private practice, etc. Then follows a lesson *en masse*, consisting of either free, dumb-bell, wand, club or sceptre exercises with or without musical accompaniment, frequently occupying from 15 to 20 minutes. Gymnastics on one or two of the various pieces of apparatus follow this, which completes the first hour. The work in the last hour consists of mass exercises and apparatus work alternated, as in the case of the first hour, except that different pieces of apparatus are used, and the description of mass exercises practised are, as a rule, changed, the variations of the latter being determined by the efficiency of the class.

The free exercises practised in the physical exercises class (which, as a rule, meet for one hour only) are based on the same principles as those governing the day schools, but are necessarily of a more advanced nature, and selected chiefly with a view of forming the ground-work for subsequent exercises with such appliances as dumb-bells, clubs, sceptres or wands.

Between Easter and the summer holidays, swimming and life-saving are taught at various baths by teachers holding either the certificate of the Royal Life-Saving Society or that of the London Schools Swimming Association, and the instruction is given both to male and female students.

Statistics.

The returns show the following figures with regard to the gymnastic and swimming classes in 1904 and in 1912—

	In 1912.	In 1904.
Number of schools taking gymnastics	238	280
Number of gymnastic centres	189	123
Number of students attending	17,600	20,627
Number of physical exercises classes	26	50
Number of students attending	1,777	4,549
Number of schools where swimming taught	152	243
Number of students	7,543	9,908

Probably the decrease in the number of students in attendance for gymnastics is accounted for by the pressure brought to bear upon them to attend classes in other subjects. Although there has been a slight falling-off in this respect, still the work is on the increase. Of late years the classes are found to consist of students who are far more enthusiastic than was the case formerly, and who are alive to the benefits accruing from the tuition received.

Displays.

The growing popularity of gymnastics among the students is evinced by the great increase of gymnastic centres, and the vast increase in the numbers of students, male and female, taking part in the annual competitions for the challenge shields—a very small number entering in 1904, while in 1912 there were between 800 and 900 entrants. The growing interest among the general public is shown by the crowded audiences at the annual displays which have been held since 1904. On the first occasion when a display was given, the small hall at the Hugh Myddelton school was more than sufficient to accommodate the audience, while in 1912 even the large hall of the Northampton Institute was insufficient for the purpose.

On 17th June, 1911, a notable display of gymnastics and kindred subjects was given in the central transept of the Crystal Palace by upwards of 650 male and female students of the Council's evening schools. This display was undoubtedly the finest ever given in the United Kingdom, and was greatly appreciated by members of the Council, managers, colonial visitors, teachers and the general public.

T. CHESTERTON.

XXV.—ENGLISH.

Introduction of new scheme in 1905.

In 1905 a very full investigation was made with regard to the teaching of English literature in the evening schools. Mr. James Oliphant, M.A., was temporarily employed to visit some of the classes and report as to the best method of giving instruction in such classes. Mr. Oliphant made a most critical report, in which he found that the classes and lectures were not in a flourishing condition. He found that irregularity and unpunctuality of attendance tended to impair the *morale* of the class; and that the arrangements as to time of meeting and place of lectures were unsatisfactory. He considered that the practice of giving a more or less formal lecture for about an hour each meeting was not justified by its success, and suggested that the instruction should be given more on the lines of a school class varying a conversational address with question and answer. The printed syllabuses were not considered judiciously chosen either to attract or to interest students of the kind desired. He

* These appliances are supplied in the case of physical exercises.

found that there was a considerable variety of type among the audiences, and that, while some of them held well together, others were very heterogenous in their composition. The best defined type of classes were virtually amateur theatrical clubs, and although the students were thoroughly in earnest over their work it was impossible to feel that this was a class of student that was entitled to special facilities at the hands of a public education authority.

As a result of the consideration of Mr. Oliphant's report a new scheme was adopted for the teaching of English literature in evening schools.

English language and literature as an important subject for technical and commercial students.

(Memorandum by Dr. Boas, divisional inspector.)

One of the most important and difficult problems in connection with technical and evening school education is to secure for the study of English language and literature an adequate place in the curriculum. Apart from the value of English to the student as a source of general culture, and as a qualification for citizenship in the fullest sense of the word, the highest authorities in technical and commercial education are agreed that the progress of young men and women in their specialised branches of study is constantly impeded by their imperfect knowledge of their own language and its literature. The rapid advance of technical education in more than one Continental country, notably Germany, is due in part to the thorough literary training upon which it is based. And among English-speaking peoples the Scots and the Americans, whose commercial success is so conspicuous, lay special stress upon the teaching of the mother tongue. But in England itself the average student who attends a technical institution or evening commercial centre does not realise the importance of improving his knowledge of English language and literature, and of cultivating his powers of expression, both in speech and in writing. The technical student tends to become absorbed, before he has sufficient general qualifications, in his special branch of study, and the young people of both sexes who are entering, or are already engaged in, commercial or clerical careers tend to devote themselves in a narrowly utilitarian spirit to subjects from which they can derive immediate material benefit. It is in the restricted intellectual outlook of so many evening students, and in their failure to realise their own deficiencies, that the chief obstacle to the development of English work lies.

English language and literature (Memorandum by Dr. Boas).

Classes in English composition and grammar.

Nevertheless, during the last few years progress has been made in various directions. That progress has hitherto been least marked in the more elementary classes which deal with English composition and grammar more than with literature, and which are attended mainly, though not entirely, by younger pupils. In these classes the attendance is still frequently unsatisfactory, and the teaching sometimes covers ground that would be more appropriate to a day school. The most regular and conscientious work is done when the students are preparing for some examination, with the object of winning a Civil Service or similar post, or a certificate that will be useful for clerical or commercial purposes. There is far too often a lack of interest in the study of the mother tongue for its own sake, and in the manifold problems which arise in the consideration of points of style, grammar, and vocabulary.

Classes in English.

Yet even in this branch of the work some improvement has been made. The vitalising influences which in recent years have affected favourably the teaching of English in all stages of education, from the university to the elementary school, have not been without some effect. Endeavours are being increasingly made to teach composition and grammar on modern lines, with less attention to technicalities and verbal *minutiae*, and more to general power of expression and mastery of the main principles of linguistic development. The importance of cultivating facility and correctness in oral, as well as in written, composition is more fully recognised, and greater attention is paid to pronunciation and articulation.

More rapid progress may reasonably be anticipated in the near future for several reasons. The heads of the centres and schools are, as a body, increasingly impressing upon new students the importance of the English classes. They have now a powerful lever in the recent regulations of the Council, which make it obligatory upon all pupils under 18 years of age in the commercial centres to take an organised course of study. In many courses English is included as a compulsory subject, and thus becomes an integral part of the student's curriculum. But what gives most hope for the future is the rise that is taking place in the standard of attainment of instructors in English. It is a subject in which the personality of the teacher, his native instinct for style and his powers of speech, must count for much. But it is being increasingly recognised that these alone are not an adequate equipment; they must be fortified by training and systematic study for which the numerous degree and diploma courses, the classes for teachers, and the publications and meetings of such bodies as the English Association now afford varied facilities.

Organised courses in English literature.

While advance is thus gradually, though slowly, taking place in the teaching of English language and composition, substantial progress has been made in the teaching of English literature, and a scheme has been organised which has done much to co-ordinate the evening study of this subject in its different stages from the schools and centres up to the university.

Courses of literature.

Till within the last few years the teaching of English literature in London during the evenings was, in classes below University Extension rank, somewhat sporadic and superficial. A few able instructors and lecturers had succeeded in isolated cases in awakening interest in the subject, and in gathering zealous pupils around them. But in a number of cases literature classes so-called devoted themselves almost entirely to Shakespearian reading or recitation. While such exercises had, of course, a value of their own, they did not amount in themselves to literary study. And the same comment applies to the reading of a few classic Victorian novels.

With the object of setting the teaching of English literature upon a more systematic basis, a scheme was instituted in the session 1906-7, which, with modifications and developments, has been continued up to the present time. In each of the four "divisional" areas of London cycles of six courses in English literature were begun. The courses were as follow: (1) Shakespeare; (2) Cavalier and Puritan literature; (3) the literature of the reign of Queen Anne; (4) Dr. Johnson and his contemporaries; (5) the romantic revival in English poetry; (6) Aspects of Victorian literature. It was arranged that these courses should be given in evening centres and a few of the largest evening schools, and that the cycles should rotate in such a way that at a centre where a course on Shakespeare was given in 1906-7, one on Cavalier and Puritan literature should follow in 1907-8, one on the literature of the reign of Queen Anne in 1908-9, and similarly till the completion of the cycle. It was also arranged that each of the six courses should be given on more advanced lines at selected "higher institutions." Each course was to include 25 lectures followed or preceded by classes for more informal instruction, and students were to be given opportunity of writing papers for the lecturers, though such papers were not to be obligatory. A staff of well-qualified lecturers was appointed, and an encouraging start was made. Three out of the thirty courses were not well enough attended to justify their continuance after a few weeks, but the others were fully (or, in a few cases, nearly) completed, and, in three instances, supplementary courses were also given. A considerable number of students did paper work for the lecturers, and many who could not devote the time to this read at home books bearing on the courses.

In the following session, 1907-8, the cycles were continued on the same general lines, but some important new features were added. To encourage regular attendance, and to stimulate home-work, a certificate was instituted, to be awarded to students attending three-fourths of the lectures and classes, and doing papers to the satisfaction of the lecturer. Furthermore, on the invitation of the University Extension Board of the University of London arrangements were made for co-ordinating the Council's evening lectures and classes on English literature with university extension courses on the same subject. It was agreed by the two authorities that winners of the Council's certificate should be permitted to attend without charge in the following session any university extension course in London aided by the Council; and that the university should allot ten of its twenty annual exhibitions in connection with the Chancellor's certificate to students nominated by the Council on the result of their sessional work at one of the evening cycle courses.

The new regulations produced satisfactory results. The attendance at the courses increased; 135 certificates were awarded, and the paper work of the best students was so good that there was very close competition for the university exhibitions.

In 1908-9 six additional courses, making 36 in all, were opened, and since then this number has been begun every session. The subject, the lecturer, the weather, and public events, such as general elections, naturally affect the attendance, and, as a rule, about half-a-dozen courses are not completed every year. On the other hand, about the same number of supplementary courses are annually arranged between Easter and Whitsuntide. The average registered attendance of students at the lectures may be put at about 850 in the autumn term and about 550 in the spring term. As there is generally a proportion of students present who arrive after the register has been closed the average attendance at the lectures in the autumn term is probably not far short of 1,000. The corresponding registered figures for the classes in the two terms are about 750 and 465. There has been an increasing tendency since the cycles were begun for students who attend the lectures to remain also for the classes—a satisfactory sign of the solidification of the work. The number of papers written varies considerably in different centres and institutions, but the quality of the best essays is highly creditable. By doing these papers, which are corrected and criticised by the lecturers, the students have opportunities of improving their style and power of composition as well as their knowledge of literature.

The fact that in the session 1911-12 the scheme begun in 1906 is being duly completed, and that over 100 students have annually obtained certificates, proves that there is a demand for systematic instruction in English literature. And in various ways, largely through the zeal and energy of the lecturers, there have been useful developments outside the more formal teaching. In connection with some of the courses small libraries have been formed, or arrangements have been made with the borough libraries to obtain the requisite books. Visits have been paid to places of literary interest, and, in connection with the Shakespearian courses, dramatic performances or recitals have been given. An album, illustrating the teaching of English in evening classes, with special reference to the literature cycles, was included in the Council's education exhibit at the Franco-British exhibition of 1908.

The students at the literature courses belong, as a rule, to the adult section of those in attendance at the centres and other institutions. They are, therefore, free to choose their own subjects of study, and many of them attend these courses only. But a considerable number take some other subject at the same time, usually a foreign language, and endeavours are being

increasingly made to encourage this practice. In any case, the attendance of a large body of earnest and comparatively advanced students is an advantage to the evening institutions, and the work, as already indicated, has to be considered not only in connection with the curriculum of the commercial, science and art centres, but with the general co-ordination of the evening teaching of English literature in London. This co-ordination has been recently furthered by some important developments.

Co-ordination between the Council's literature courses and the University of London's diploma scheme.

In 1908 the University of London substituted for the Chancellor's certificate a new scheme of diplomas in the humanities, including literature, history and economics. The diploma course in any one of these subjects involves three years' attendance at lectures and classes with paper work and examinations, followed by a fourth year of seminar or other specialised study. The diploma will be more valuable to students, especially those who are teachers, than the certificate, and the scheme has had an encouraging beginning. The ten exhibitions awarded annually by the university to students who have distinguished themselves at the Council's evening literature courses are now available for the diploma courses. During the period that the scheme has been in operation some of the exhibitioners have for various reasons had to give up the work, but at the end of 1911 more than thirty were at different stages of the course; few, if any, of these would have been able to undertake the work but for the scheme of co-ordination between the Council and the university. It should be added that the university awards ten other exhibitions for the diploma courses to university extension students, while a considerable number of persons pay their own fees. Two diploma schemes in literature are at present being carried on. One is on general literature, ancient, mediæval and modern, and the courses are given at various institutions, some of them of polytechnic type, *e.g.*, the City of London College, Wandsworth Technical Institute, and (outside the county) West Ham Technical Institute. The other is on English language and literature, and is being held at King's College, in close connection with the classes in English literature for teachers arranged by the Council in conjunction with the college authorities. The full results of these diploma courses cannot be gauged till the completion of the four years' scheme, but there can be no doubt that they are doing much both to stimulate and to systematise the study of literature by persons who have not the leisure or the desire to work for a degree.

Evening courses in English language and literature for university degrees.

Evening courses in English language and literature preparatory to the degrees of the university are held in more than one of the colleges and aided institutions. Some of the larger polytechnics have in recent years, in addition to English work of a more general and less advanced type, begun to form classes to prepare for the university intermediate arts and B.A. degree examinations. The work has been chiefly of pass, not honours, type, and has not hitherto progressed far. It is at present in a state of arrested development, pending the settlement of the large questions affecting the place of the polytechnics in the general scheme of London education. But if English for university purposes is to be taught successfully in the polytechnics, lecturers of much higher academical qualifications must be appointed than those, with one or two exceptions, who are now responsible for the subject.

These observations do not apply to the Birkbeck College, which, though for some purposes grouped with the polytechnics, deals mainly with humanistic subjects. In this college valuable evening work in English for the honours and pass degrees of the university has been done under fully qualified "recognised teachers." The number of evening students enrolled in English for university courses in 1910-11 was 76, of whom 18 were taking honours.

But the most important development of evening work in English for university degrees has been at King's College. Since 1908-9 the Council has, through the senate of the university, made an annual grant in aid of the evening classes in English language and literature at the college. This has enabled the college authorities to organise a complete system of lectures and classes in the evening for students who are preparing for the M.A. and B.A. degrees in the subject.

These lectures and classes are, of course, open to all students on payment of the usual fees, but the Council, in consideration of its grant, is entitled to nominate annually 20 teachers in maintained or aided institutions to free places. These free places are normally held for three years by students reading for the B.A. course, and for two years by those who are candidates for the M.A., which is awarded mainly on a thesis. Through illness, pressure of professional work, and other causes, a proportion of these students have been unable to conclude the course, but in 1910-11 about 40 were in attendance, as well as a slightly smaller number of other students (including those preparing for the intermediate examination in arts). The teachers attending these classes have been drawn from institutions of all types, training colleges, polytechnics, secondary, central, and elementary schools. Many of them have thus been enabled to obtain degrees, mainly in honours, which would otherwise have been out of their reach. Two theses on which M.A. degrees were awarded were on "The Folk-lore of Peele's *Old Wives' Tale*" and "Studies in the Diction of Spenser's Poetry." The work of one student (a teacher in an elementary school), who took first-class honours in the B.A. examination, was considered so good that he was nominated to fill a temporary vacancy in the lecturing staff.

It is thus evident that while the majority of candidates for university degrees will naturally be day students, the highest honours in English may be obtained by those whose work is restricted to the evening. The provision of fully organised courses of lectures and classes for such students has been one of the most important recent developments in the field of evening education.

Concluding observations.

Conclusion.

It will be evident from the above summary that the teaching of English language and literature in London evening institutions is a complex problem, of which it is difficult to discuss any one aspect without reference to others in more or less intimate connection. The chief points gained within the last few years have been—(1) A more comprehensive and accurate survey than heretofore of the wide field which the evening teaching of English in London has to cover; (2) the gradual adoption of improved methods of teaching English composition and grammar; (3) the institution of the "course system" in commercial centres, which makes English a compulsory subject for many junior students; (4) more systematic instruction in English literature, and the co-ordination of lectures and classes in this subject from the evening centre to the university college; (5) the provision of the diploma in literature and of facilities enabling poorer students to prepare for it; (6) the extended organisation of courses of study for university degrees.

But, as has been indicated, there is need for much further advance which cannot take place till there is a more widely diffused interest in English for its own sake, a larger measure of compulsory study of the subject by young students, a more abundant supply of capable teachers, and a stricter delimitation of the educational functions of the varied institutions in which English is part of the curriculum.

F. S. BOAS.

XXVI.—MODERN LANGUAGES.

(Memorandum by Mr. Cloudesley Brereton, M.A., divisional inspector).

Modern
languages
(Memoran-
dum by Mr.
Brereton).

The record during the last five years of the teaching of modern languages in the London evening schools and commercial centres is one of steady progress. Some of this advance is due to the better preparation that the students have received before their entry, especially those coming from the secondary schools. Such students, however, though increasing in number, are certainly in a minority compared with the remaining pupils. The lion's share, therefore, of the progress accomplished must be set down to the credit of the evening schools and centres themselves.

In making any estimate of the services rendered by this evening teaching it must never be forgotten that in London at least entrance to the evening school is voluntary and not compulsory. The strong pressure which is exercised in certain northern towns by large employers is principally conspicuous by its absence. The introduction of the course system, mainly into the centres, and the raising to 18 of the age at which a student may pick and choose his subjects will no doubt act beneficially in the near future, but until recently there has been no compulsion other than moral that was or could be exercised over the attendance of the students. Even now the course student under 18 can leave at any moment he likes if he happens to be dissatisfied with the instruction he is receiving. All that can be demanded of him is that if he is set down for a course he cannot "scamp" any of the subjects of which it is composed.

The
responsible
teacher.

Under these conditions the personal equation represented by the relations between the responsible teacher and the students, and in a somewhat lesser degree between them and the class teacher, as far at least as the centres are concerned, assumes considerable importance as an element in the improved condition of the evening commercial work in general and the standard of modern languages in particular. No one, in fact, who is not behind the scenes can realise the extraordinary influence exercised by the responsible teacher, and often by the class teacher, on the attendance of the great bulk of the students. The relation, in fact, between the responsible teacher and the students is quasi-tutorial. He makes a point of knowing, if possible, all the students and of acting as a sort of educational adviser in their studies. He exercises his powers of peaceful persuasion either by word of mouth or a carefully arranged *crescendo* of written appeals which have nothing uniform or stereotyped about them, but betray a personal knowledge of the wants and weaknesses of the truant student. Every week he goes through the lists, marks down the missing or irregular, and executes a general "rounding-up" movement, which renews the lease of life of many classes and converts not a few of the waverers into regular, earnest and even enthusiastic students. One is pleased to be able to put on record the substantial services that the heads of our centres are rendering to the County Council and the community—services that are not so well known as they might be owing to the fact that these institutions have no managers to make their good work more generally appreciated.

The influence of the class teacher in the centres is exercised in a similar fashion, though it must be admitted that he is not on all occasions such an adept at keeping his pupils in regular attendance as the responsible teacher, who has spent, may be, half his life at the business. On the other hand the fact that the actual teaching is in his hands and that his contact with the student is still more direct, makes him within his own sphere one of the main factors in the success of the evening work.

Another important factor that has led to the general improvement has been the gradual introduction of home work in the schools. In several centres 80 per cent. of the students, and even more, regularly show up home work in modern languages. In others, however, the percentage is still unsatisfactory. It is hardly necessary to point out that a student who does home work is really working double shifts at his subject, and his progress, as in all intensive work of this kind, is considerably more than that of the ordinary student who does nothing at home. This is a form of "home industries" that every teacher of modern languages in our centres should encourage. Homework

The growth of the practice of taking certain external public examinations must also be credited with some of the present advance in modern language teaching, the main examination taken being those of the Society of Arts, the London Chamber of Commerce and the National Union of Teachers. Examination.

It is not necessary here to enter into a long discussion on the *pros* and *cons* of the value of examinations. It is only needful to point out that, as the great bulk of the students taking modern languages do so for technical or professional reasons, the existence of some audit and verification of the knowledge they have acquired, of some tangible proof in the shape of a certificate that they can show to employers, is, therefore, fully justifiable and indeed absolutely necessary. It is true that some of these examinations might be modernised in certain details and brought more into accord with the latest practices in modern language teaching. Again, it is a moot point whether the Council should not, either by itself or in conjunction with some public body or bodies, establish a general system of examinations in commercial subjects or in commercial education for its evening students. But, apart from such questions, experience seems to indicate that the present examinations exercise on the whole a beneficial effect on the teaching, in providing both teachers and students with a definite aim and goal for the work of each session, even when all the students do not enter for the particular examination in view. At any rate, there is a certain amount of evidence to show that, in cases where the students do not take these examinations in reasonable numbers, the standard of attainment is, as a rule, inferior and the work less thorough.

Probably the greatest cause, however, in the advance that has been made is the remarkable improvement in the attainments of the *personnel* who are teaching the subject. The teachers.

When the School Board first decided to introduce the teaching of French they had doubtless a very uphill task in finding suitable teachers for their evening or day work. They consequently established an examination which no doubt encouraged a large number of teachers to take up the subject and qualify for posts in the evening and day schools. Since 1903-4, however, the standard of teaching in the secondary schools has largely risen, and the universities are now turning out many more persons competent to teach modern languages than was formerly the case, while the number of people engaged in business who are also thoroughly acquainted with modern languages has also steadily increased. With the area of recruitment thus widened, the standard has risen so greatly that it is hardly a paradox to say that it often is as difficult to get a post in an evening centre as to get one in an average secondary school.

The foreign-born teacher who only knows his own language, and that not always perfectly, is rapidly becoming a thing of the past. The present candidates for posts in evening schools, if foreign, have to show they have an adequate knowledge of the language of their pupils, and such is essential, as no little portion of their work is translation from the foreign tongue into English, which is subsequently tested in many cases by a public examination. In the same way it is no longer sufficient for the English-born teacher to give evidence of a mere book knowledge of the language he proposes to teach. He is obliged to display, before a sub-committee containing several members with an excellent knowledge of foreign languages, ability to speak and express himself correctly and grammatically in the foreign tongue he offers. The academic standard of the teachers recently appointed has also risen. The exaggerated importance attached to certain minor foreign degrees and certificates has disappeared, and to-day an increasing number of the teachers appointed possess an English B.A. in honours or its home or foreign equivalent. The *cadres* of the modern language staff are more and more being recruited from persons of real culture and wide outlook, while among the more recently appointed teachers are many who are thoroughly *au fait* with the principles and methods of the new reform movement in modern languages. Again, thanks to the classes in phonetics and in teaching methods established by the Council and the holiday course scholarships which are open to teachers in evening schools, a goodly number of the teachers have availed themselves of these opportunities for improving their existing knowledge and grasp of foreign languages. There are, however, still unfortunately too many among the older teachers who do not realise fully the necessity of keeping abreast of new methods and of preventing their accent from growing rusty. If each centre could be persuaded to send one of its teachers a year to the courses on phonetics and another to those on teaching methods, one has little doubt that the results would be most beneficial to the students in the classes they teach.

A certain amount has been done of recent years to codify and co-ordinate the books in use and the methods in vogue in the different centres, and notably in the lower classes there has been an introduction of new books based upon the new methods of learning modern languages. But in too many cases still, teachers cling to the old manuals they have used from their youth up, and have failed to co-ordinate their work with the classes above or below. In some cases it is quite possible that the teachers are too old to learn, or in other words they are too old to form new habits and ways of looking at things. The majority Books.

of people begin to stereotype at 30. We can hardly therefore criticise harshly the teacher of over 50 who finds it difficult to revolutionise his methods, provided that he produces appreciable results after his kind. In such cases it is possibly better to let him go on working more or less on the old lines than to try to make a "new methodist" of him at 50. Teaching is an art, not a science, and an art, like everything else that is practical, has to be learnt fairly young. Still, such teachers are undoubtedly the exception. The great majority are still young enough to grasp the meaning and importance of the new method. It follows, therefore, that in all centres and schools the teachers of modern languages should try and co-ordinate as closely as they can their books and their methods. A meeting at the beginning of each session in which the successes and failures of the previous session were freely discussed would go far to promote such co-ordination, especially if, in French and German, one of the teachers were unofficially or officially recognised as head of the department for that language. One may perhaps mention here a form of organisation that gives successful results in some schools. A teacher starts with the elementary class and takes the same pupils through the intermediate and advanced stages. The defect of the scheme is that the student only hears one person speaking the foreign language throughout the course. On the other hand, the student's attendance being voluntary the personal tie with the teacher is a strong factor in inducing the student to return for another year. The adoption of such a system, however, does not do away with the need of co-ordination, as pupils are not infrequently promoted from one class or left behind in another, nor does it dispense the teachers either from comparing notes and experiences of what they find to be the best methods. This close co-ordination which no mere syllabus-making can secure, if rendered a reality, as it is in some centres, promises, one believes, to be the *chief factor* in increased efficiency in the near future.

Types of
students.

If evening classes were made compulsory for all students below a certain age, we could no doubt insist on the employment of more thorough-going methods, in the lower classes at least. But until that is an accomplished fact we cannot expect so strict an application of the method as obtains in the day schools. Moreover, it is obvious that the vast majority of the students take up modern languages in order to improve their command of them for business purposes. We cannot therefore ignore the professional and technical side of the subject; we have in fact no right to ignore it for the sake of giving the instruction on more liberal lines, while owing to the students' attendance being voluntary the teacher is bound to a certain degree to consult their tastes, their predilections and even, to some slight degree, their prejudices. This constant preoccupation of the teacher to make his teaching interesting and attractive has its good side. Many of our students arrive worn and tired out at the end of a hard day's work behind the counter or in the counting house. We cannot demand from them the same mental vigour, the same tenseness of energy, the same freshness, as we can from the ordinary day pupil who has not spent 10 hours of the day before coming to his school work. The student who, after bearing the burden and heat of the ordinary working day, comes to the evening school seems to me worthy of all praise. In many cases he has only just passed from a school where the work, with home work, possibly amounted to 35 hours a week to an office or business where he puts in at least 50 hours a week, and on the top of this he has the courage to come and work for another 2, 4, or even 6 hours a week in our schools. We are right, therefore, in making the work somewhat "peptonised" for him and in not subjecting him too exclusively to exercises which, while good in themselves, demand an attention and application he cannot give at nine o'clock in the evening. This is naturally no plea for slovenly and ineffective teaching; on the contrary it is an attempt to show how, taking into account the *état d'âme* of the evening student, the need for skilful and appropriate teaching is even greater than in the day school.

While the work is dominated to a certain extent by the requirements of the commercial world, it would be an error to imagine that the commercial type of student is the only type. A mere glance at the number of *causeries* and lectures on literature established in the different centres would indicate that those who wish to study a foreign language for its own sake are also provided for. Moreover, in certain centres French clubs and societies have been started, and these with their debates, dramatic entertainments and recitals have done a good deal to infuse into the minds of the French students a love and a knowledge of French culture. I would add that the majority of these clubs have owed their inception to the efforts of some French-born teacher at the centre who is warmly to be commended for his disinterested attempts to make known the excellencies of his own country to our English students.

Possibly, as the standard of attainment still further rises, it may be possible to differentiate still further between the needs and requirements of the various students taking modern languages. In the world of commerce, for instance, the foreign correspondent is a person mainly engaged in translating and letter writing; on the other hand, the saleswoman or *interprète vendeuse* in some big firm has probably most need of being able to explain *viva-voce* the nature and quality of the articles she sells to foreign purchasers. It is true that both these types need a common basis of general knowledge of the language, but it might be advisable later on to start conversational classes for certain definite trades where a knowledge of spoken French or German is the predominant desideratum.

Attend-
ance.

One of the most important problems which, however, is less acute than formerly, is the prevention of leakage in the language classes at the beginning of the session. Students, especially juniors, come, pay their fee, remain for one or two lessons and then drop off. Thus, in 1910-11, in French, 35 per cent. of the students in centres and 55 per cent. of the students in ordinary schools failed to put in 14 attendances, and in German the figures were 36 per cent.

and 52 per cent. respectively. Much has since been done by means of making the classes of more reasonable size and by allowing for a class assistant at the beginning of the session when they are overcrowded. More still will be accomplished by the working of the course system in the centres and its quasi-compulsion, while its effective extension to the ordinary schools taking commercial subjects would likewise produce a beneficial effect. It also seems likely that the raising of the fees for junior students with a return of, say, half the fee to the regular student at the end of the session, would also have a steadying effect on the faint-hearted and the *fainçants*. The revised rules for closing down classes have probably also been a favourable factor in reducing the big unwieldy classes of yore and in keeping the higher classes going. One possible reform is still desirable—the allowance of special facilities for keeping alive classes in the first year of inception. It is obviously more difficult to keep a class together during the first year of its growth than when it has been established for several years.

A few statistics in conclusion will give some idea of the increase during six years from the session 1903-4 in the number of languages studied and of the entries of the students—

	1903-4.	1909-10.
French	10,792	13,145
German	1,942	2,747
Italian	70	288
Latin	121	221
Portuguese	6	13
Russian	29	62
Spanish	384	805
Dutch	—	13
Esperanto	—	246
Irish	—	132
Welsh	—	51
Yiddish	—	31
	13,344	17,754

It is interesting to note that it has just been decided to add Japanese to this list.

The following statistics of the number of students taking the higher examinations in the two years under comparison are also interesting—

	1903-4.		1909-10.	
	<i>Entered.</i>	<i>Passed.</i>	<i>Entered.</i>	<i>Passed.</i>
Advanced stage in Society of Arts, London				
Chamber of Commerce and National Union ^x of				
Teachers	354	295	903	683

The standard itself has risen at least for the Society of Arts, which had no stage III. in 1903-4, whereas in 1909-10 this stage was taken by 235, of whom 194 passed.

The foregoing statistics clearly indicate by the improvement in their quantity and their quality that the teaching of modern languages in the evening commercial centres and the evening schools is meeting with a very real demand on the part of the community, and this impression is greatly confirmed by the experience of the heads of some of our largest evening centres during the past quinquennium. A responsible teacher of one of the largest centres puts the whole thing in a nutshell when he states "There is not the slightest doubt that the study of modern languages in the evening schools of the Council has greatly improved the position of many of the students." A canvass of the language teachers themselves shows that the students are nearly all attending for definite business purposes and not for "their health," as the Americans say. The students attend, in fact, because they recognise it is one of the best ways of improving their commercial value and getting their salaries raised, and in some cases they are actually encouraged to do so by the firms employing them.

Results
of the
teaching.

This applies not merely to the rank and file, but cases have been cited of former students now occupying important positions in London houses, while not a few of the posts in the postal service, in which a knowledge of foreign languages is required, are held by employes who have picked up the requisite French, German or Russian by attending at an evening school. Much no doubt still remains to be done, but there seems a pretty wide impression abroad that a good deal of progress has been made in the matter as far as the home supply is concerned. What, however, is not so generally known is that a not inconsiderable number of evening-trained students are holding important positions abroad owing to the knowledge of languages they have acquired in the evening centres and schools. Cases have been cited to me of students holding important posts in France, Germany, Spain, and especially South America, as representatives of business houses or the heads of banks. Thus a responsible teacher writes—

"I can call to mind six old students of this school who are now in South America, two of them . . . are manager and sub-manager of the bank of Taxapara. Another old student is in Mexico. We have also three in Spain—these, of course, all studied Spanish. Of the students in German many a dozen have gone to Germany representing English houses, while one obtained a post in Tientsin (China) in an important German firm. We have many old students in France. One student who studied German and Russian is manager of an oil field at Baku."

It is interesting to note that we now are able not only to supply the home market with persons skilled in foreign languages, but are even exporting them to some extent.

CLOUDESLEY BRERETON.

XXVII.—TEACHING OF BOOK-KEEPING AND ACCOUNTANCY IN EVENING SCHOOLS AND CENTRES.

Teaching of
book-keep-
ing and
account-
ancy.

The teaching of book-keeping and accountancy in evening schools and commercial centres has received special attention during the last two or three years. In 1910 the question was considered as to whether the teaching was as efficient as it might be, and especially whether it was sufficiently related to the actual conditions of business life. In order that some authoritative opinion might be obtained as to the character of the instruction given in the classes, and as to how the teaching could be made of greater value to the students, the Council decided to employ an expert accountant to visit the classes in company with one of the Council's inspectors and to submit a report. The Institute of Chartered Accountants were invited to nominate one of their members to carry out this work, and, in accordance with their suggestion, Mr. L. Cuthbert Cropper, F.C.A., senior examiner in book-keeping to the London Chamber of Commerce, assistant examiner for the Royal Society of Arts, and member of a firm (Knox, Cropper and Co.) who are auditors to the Midland Railway Company, was appointed. Mr. T. C. Jackson, one of the Council's district inspectors, accompanied Mr. Cropper in his visits to the classes. In October, 1911, Mr. Cropper's report was received.

Revised
regulations
as to quali-
fication of
teachers.

From the report, which is printed below, it will be observed that the chief criticism of Mr. Cropper had reference to the character of the teaching, and that he emphasised the need of employing teachers possessing higher qualifications and more practical acquaintance with modern business methods than many of the staff possessed. The views of Mr. Cropper were reported to the Council, and it was resolved to raise the standard of qualifications required of instructors in the subjects of book-keeping and accountancy. Details of the new qualifications are set out in the following resolutions of the Council—

(a) That, as from 1st September, 1912, the qualification for teachers of book-keeping in evening schools and centres shall, except as provided hereafter, be the possession of one of the undermentioned certificates—

Commercial centres—I. Elementary and intermediate stages—

(i.) Certificate (intermediate or final) of the Institute of Chartered Accountants.

(ii.) Certificate (intermediate or final) of the Society of Incorporated Accountants and Auditors.

(iii.) Royal Society of Arts, stage 3, class 1, certificate in book-keeping.

(iv.) The senior certificate with distinction or the teacher's diploma of the London Chamber of Commerce in book-keeping; provided that candidates possessing only the qualifications (iii.) or (iv.) shall also have one or more of the undermentioned qualifications in cognate subjects, viz., Royal Society of Arts certificate in accounting and banking, London Chamber of Commerce senior certificate in methods and machinery of business, banking and currency, or commercial law.

II. Advanced stage—

(i.) Certificate (intermediate or final) of the Institute of Chartered Accountants.

(ii.) Certificate (intermediate or final) of the Society of Incorporated Accountants and Auditors.

Ordinary evening schools—

(i.) Certificate (intermediate or final) of the Institute of Chartered Accountants.

(ii.) Certificate (intermediate or final) of the Society of Incorporated Accountants and Auditors.

(iii.) Royal Society of Arts, grade 3, class I. or II., certificate in book-keeping.

(iv.) The senior certificate with distinction or the teacher's diploma of the London Chamber of Commerce in book-keeping.

(b) That existing teachers in evening schools and centres whose qualifications fall below the standard set out in the foregoing resolution (a) shall be allowed until 1st September, 1914, for the purpose of improving their qualifications.

(c) That in each of 12 commercial centres there shall be appointed from the beginning of the session 1912-13 a duly qualified accountant on two evenings per week, for the purpose of teaching the highest class in book-keeping or accountancy, and for advising upon and supervising the instruction in methods and machinery of business, banking and currency, commercial law and cognate subjects.

At the same time, it was resolved to increase the salary of instructors in the advanced stage of book-keeping in commercial centres from 7s. 6d. to 10s. 6d. an evening. Since the date of these resolutions, a beginning has been made in securing better qualified instructors for vacant posts, and a duly qualified accountant has also been appointed to each of the 12 commercial centres. In addition to teaching on two evenings a week, they are required to make at least 15 visits of a supervisory character to classes in cognate subjects.

The following is Mr. Cropper's report—

Report by Mr. L. Cuthbert Cropper, F.C.A.

Report by
Mr. Cropper

In accordance with the instructions of your Education Committee conveyed in the notice of my appointment addressed to the secretary of the Institute of Chartered Accountants, dated July 11th, 1910, and in your letter to me of 7th December, 1910, I have visited a selected number of the above schools, upon which I now beg to report as follows—

I have inspected 40 classes in book-keeping, accountancy, and accounting and banking in 20 centres, covering the greater part of the area under the jurisdiction of the London County Council.

In all cases the classes visited were selected by me.

I.—Teachers.

The teachers whose work came under my observation may, in my opinion, be classified as follows—

Good	...	...	...	...	...	...	25 per cent.
Fair	...	...	...	...	...	...	32·14 „
Poor	...	...	...	...	...	...	42·86 „

Of these teachers 42·86 per cent. were registered as being engaged during the day in business, while 57·14 per cent. were employed on the teaching staff of the Council's day schools.

The list of teachers who are registered as being employed in business included some who are engaged as commercial correspondents, clerks in season ticket offices, Civil Service officials, and in other non-accountancy work.

In arriving at the above classification, no teacher has been characterised as “good” unless, in addition to showing aptitude for tuition, he has possessed a practical knowledge of modern book-keeping.

The teachers classified as “fair” showed good teaching capability, but possessed theoretical knowledge of the subject only, and lacked experience in modern business methods.

The teachers classified as “poor” failed both as teachers and as accountants.

I have no knowledge of the tests employed in making the selection from the candidates desirous of appointment as teachers for the classes under review. I was informed by various responsible masters that they were supplied with a list of suitable teachers, from which they selected names. I gathered that the responsible masters appointed the candidates who, in their opinion, were most capable to instruct the class they desired to perform. In no case which came under my observation had the responsible master a sufficient knowledge of accounting to enable him to form a reliable estimate of the technical knowledge possessed by the applicants. I formed the opinion, in fact, that the necessary knowledge was assumed to be possessed, and that teaching capability and aptitude alone were considered by the responsible masters. It is difficult to see how any other test can be applied by these gentlemen, in view of the fact that all responsible masters are, I understand, day teachers in the Council's schools, and are without practical experience of commercial subjects.

In my opinion, it is a matter of urgent importance that the method of selecting the teachers of accountancy subjects should be revised. Under the present methods the standard of teaching aptitude and of practical knowledge possessed by teachers differs widely. Of two similar schools in the same district, one set of pupils may be taught well and upon practical modern lines, while in the class of the same grade in the other school, the teaching may be inefficient in principle and out of date in practical detail. The qualifications which should be demanded of teachers need to be standardised, if that expression may be allowed in this connection. There must, of course, always be differences in the natural aptitude for teaching possessed by men of differing mental and physical power, and I do not suggest that this capacity can be too rigidly standardised. I do, however, suggest that the knowledge of the subject demanded from those making application for employment as teachers could and should be standardised on practical and modern lines.

If the principal commercial examinations are accepted as a test of suitability in this connection, I am of opinion that first-class certificates in the highest grades only should be deemed sufficient.

In the elementary and intermediate grades it may be possible to ensure satisfactory instruction by employing, as teachers, men who have a theoretical knowledge of the subject only, provided the text book used is modern and practical. Teaching capability is, of course, one of the first essentials, and in this respect the experienced masters from the Council's day schools are, doubtless, excellent; but in the advanced grades, at any rate, it is difficult to see how adequate instruction can be given by any one who is not in daily touch with the progressive adaptations of modern practical book-keeping to the needs of the commercial world.

To summarise the degrees of efficiency of the present teaching staff, it is my opinion that—

(a) In 25 per cent. of the classes the instruction is good, practical and modern, and that it affords every opportunity to the student of gaining distinction in examination work and a useful equipment for business life.

(b) In 32·14 per cent. of the classes the instruction is fair, and affords to students reasonable chance of obtaining pass certificates in the lower grades of the popular commercial examinations of the day, but leaves them with much to learn and unlearn on entering actual commercial life.

(c) In 42·86 per cent. of the classes the teaching can only be described as inefficient from all points of view.

The teaching force available is apparently industrious beyond criticism, but, as has been indicated above, it is handicapped in some instances by obsolete methods and by lack of practical knowledge.

II.—The teaching.

I have already stated that, in my opinion, there is urgent need for the standardisation of the teaching in the book-keeping classes.

The classes are not at present under any inspection which is expert in this particular subject, with the result that there is an entire lack of any standard of instruction in the various classes of the same grades. As I have already indicated, the instruction in some classes is capable and thoroughly modern, whilst in other centres students preparing for similar grades of examination are taught to employ methods long since discarded, and which I have never seen in practice in a somewhat extended experience.

The result of this lack of standardisation is clearly evident in the work which comes before me in my capacity as an examiner to public bodies. The students sitting for examination at some centres send in an even series of meritorious papers, the majority of which are entitled to pass certificates, while a fair percentage earn distinction. On the other hand, the papers sent in by the students at other centres present work which is consistently poor in quality, and shows a lack of practical and modern knowledge, and obviously results from inefficient instruction.

I fail to see how these classes can be brought into line, upon modern methods, in the absence of some system of inspection which is expert in this subject. This suggestion, if carried out, may at first entail considerable expense, and will occupy some time in its organisation. When once an efficient system has been created, however, I do not think that an adequate inspection would be either costly or difficult to maintain.

It may be objected that expert inspection cannot be provided for every subject. In my opinion, however, book-keeping has special claims and special need for expert inspection. It has been estimated that there are over 20,000 students of book-keeping in the Council's schools. In the vast majority of cases, the subject has been taken up as the life work of the students. The subject is one which is constantly advancing, and to ensure that the teaching keeps pace with modern developments, expert inspection is, in my opinion, essential.

III.—Pupils.

I gathered during my inspection that any pupil applying for enrolment at an evening school was retained if possible at the particular school at which he makes his application. There is, doubtless, a natural desire on the part of responsible masters to obtain as large an entry of students as possible. There can, however, I think, be no doubt that in some cases the best interests of the pupils themselves are not served by their retention at the particular school to which they apply for enrolment. I am aware that, in theory, the suitable grading of pupils is carried out. To a large extent, however, this desirable regulation is neglected in practice. In many cases I found that pupils of widely different grades of knowledge were being taught in the same class. In some instances, the same class contained pupils of "elementary," "intermediate," and "advanced" standards. It is unnecessary to point out that the pupils cannot be efficiently instructed under such circumstances. Collective teaching is, of course, out of the question, and the time available for individual instruction is too short to allow adequate attention to be given every student. The usual result in such cases is that too generous an allowance of time is given to the more promising pupils at the expense of those who are less able. In my opinion, pupils who desire to learn book-keeping should be more carefully graded at the time of their enrolment. Each district, as far as possible, should provide for the widely differing needs of the various grades of pupils applying for instruction, and the applicants should be directed to attend the school providing classes most suitable for their individual requirements, irrespective of the particular school at which their original application is made. Under the present system, much valuable time is being wasted both by teachers and pupils.

I regard the suitable grading of the pupils under an efficient scheme of co-ordination of the schools in each district, as one of the most pressing reforms which is needed to raise the efficiency of your present system.

In districts where the demand is sufficient to justify the experiment, one or more "examination classes" would, in my opinion, be greatly appreciated. Candidates for examination form a grade apart, and are, as a general rule, earnest workers.

In many classes under the present system, examination preparation is difficult and is apt to be disheartening to the serious student. "Cramming" for examination work, in any form, is the last thing I desire to advocate, but I recognise the serious drawbacks which are attached to the necessary preparation work in your general classes as they are now constituted. Success in commercial examinations is of vital importance to many of your pupils, whose employment and promotion frequently depend upon it. Success in examinations may not be the ideal goal to encourage the student to achieve, but some test is essential, and there is always a commercial demand for established efficiency.

IV.—Text-books.

Under the present regulations, teachers are permitted to select the text-books to be employed in their classes, provided they choose books which are on the requisition list of the Council. I do not think that there can be any objection to this freedom of choice, provided that due care is taken to ensure that the books scheduled in the requisition list are suitable and

efficient. I venture, however, to express the opinion that a critical examination of the list will reveal some books which are quite unsuitable for recommendation to students in the present day. This remark applies more particularly, perhaps, to the books employed in the elementary classes. Almost the whole of the books in use in classes have been written by men who are entirely without practical knowledge, and the instruction given to the young student is based upon methods which in many instances he will have to unlearn when he commences his commercial career.

These remarks apply also, in a smaller degree, to some of the most popular text-books employed by the non-practical teachers in the intermediate and advanced classes. I would also point out that in some cases the examination papers of the chief examining bodies as reproduced in these books are so mutilated that they mislead and greatly handicap the students who rely upon them.

It is a matter of frequent complaint amongst business men that youths applying for employment, and purporting to possess book-keeping knowledge, have to be re-taught upon modern methods. The examination work of the present day justifies this complaint in far too many cases. To a large extent, inefficient text-books are responsible for this shortcoming. In many instances I found during my inspection that text-books were employed, in which methods long since discontinued in the commercial world were taught; whilst on the other hand, there was an entire absence of instruction upon modern methods, more particularly in the direction of economising space and labour.

Probably few subjects are more difficult to learn from text-books than book-keeping. The growing complications of commercial transactions, and the mass of detail arising out of the magnitude of modern trade, necessitate new methods of record and new demands for condensation and labour-saving devices.

It may be advisable to summarise briefly the recommendations I desire to offer for consideration—

(i.) *Teachers*—More stringency is needed in the selection of the names placed on the employment list. All teachers for advanced classes should be in daily touch with practical accounting work.

(ii.) *Teaching*—The instruction given should be standardised and modernised. To ensure this, the classes should be subject to expert inspection from time to time.

(iii.) *Pupils*—The careful grading of pupils should be ensured upon enrolment. The subject should be provided for in districts according to local requirements, rather than in individual schools. Each district should provide "elementary," "intermediate," "advanced," and, where possible, "examination" classes. Each of these classes should be strictly confined to students of its particular grade. Applicants for enrolment should be directed to attend the class most suitable to their individual needs, and should not necessarily be retained, as now, at the school applied to in the first instance. Mixed classes, consisting of two or more grades of pupils, should be discontinued.

(iv.) *Text-books*—I consider that it is advisable to continue to allow the teachers some margin of choice with regard to the text-books they employ. There can be no doubt, however, that the present requisition list needs careful revision, in order to ensure that the books offered for selection do not contain obsolete and misleading instruction.

L. CUTHBERT CROPPER.

P.S.—Since writing the above report I find that the requisition list has been revised and the class of text-book to which I refer above has been eliminated to a great extent. The above remarks apply, however, to the text-books still in use at a large number of classes.

XXVIII.—CONCLUSION.

(1) Behind the educational activities there is the background of London, the largest city of all time. Conclusion. The unique position of London.

London has now a greater population than the whole male population of England and Wales at the beginning of the nineteenth century.

The centre of diplomacy, finance, the learned professions and the news exchange of the world, it draws thousands of visitors annually on objects of pleasure and profit, and the demands of these alone require the greatest hotel, restaurant and theatre system known. The choicest wares of all the markets are found here for visitors as well as for citizens. It is thus a gigantic centre of pleasure. One quarter of a million people find employment in the making of dress and clothing, and one-fifth of a million are engaged in supplying food, drink and lodging.

In recent years manufacturing businesses have been to some extent driven from the centre to the circumference and beyond the county borders, and commercial offices and dwellings have taken their place. London, while not yet fully developed, has suffered an apparent check in the growth of population owing to the spreading of the homes beyond the county boundary. Together with this, the areas formerly largely peopled by workmen and clerks are being

transformed by rebuilding on a very extensive scale, and as site values are enhanced and leases fall in, districts are transformed from mean and squalid streets to terraces of handsome blocks of mansions. The displacement of the worker and the consequent migration to an outlying district have brought about the growth of a gigantic system of railways, trams and buses to carry the ever-increasing numbers daily to and from their work.

London engages one quarter of all the clerks in England and Wales. One-fifth of the shipping of the United Kingdom enters the port of London. On the other hand, one quarter of all the men and boys over 14 years of age are engaged in unskilled employments. Only about one-third of the children leaving the elementary schools enter a form of occupation which can, by any stretch of imagination, be called skilled. Seventy per cent. of the dock labourers are born in London. One-third of the population consists of newcomers from the provinces and abroad. The attractions of London make it wasteful in its recruiting. New-comers are often preferred by employers to London-born workers; and their children are, in turn, in danger of being rejected in favour of more newcomers.

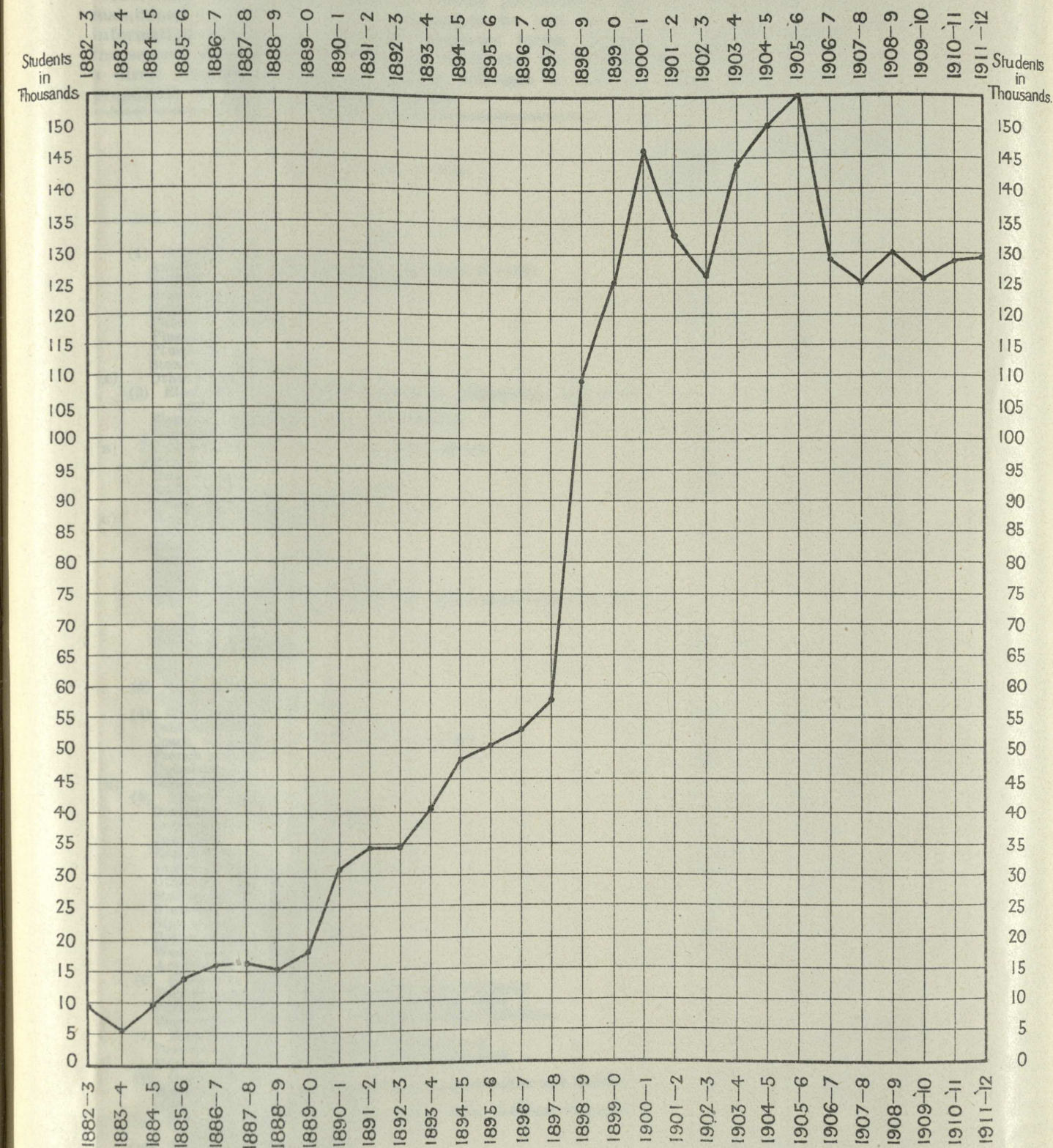
(2) The system of technical education and evening schools which will provide for needs of such magnitude, variety and changing character cannot be said, in any way, to have taken on its final form.

R. BLAIR,
Education officer.

December, 1912.

APPENDIX A.

Diagram showing the number of Students admitted to Evening Schools from 1882-'83 to 1911-'12



Session	N ^o of Schools	N ^o of Pupils Admitted Throughout Session.
(1)	(2)	(3)
1882-1883	83	9,064
1883-1884	74	5,563
1884-1885	84	9,346
1885-1886	114	13,968
1886-1887	128	16,050
1887-1888	128	16,320
1888-1889	135	15,732
1889-1890	159	18,268
1890-1891	232	(a) 31,015
1891-1892	239	34,562
1892-1893	242	34,797
1893-1894	265	40,858
1894-1895	271	48,512
1895-1896	271	50,218
1896-1897	276	52,804
1897-1898	280	57,586
1898-1899	321	(b) 109,121
1899-1900	368	125,640
1900-1901	395	146,971
1901-1902	398	(c) 133,191
1902-1903	376	(d) 126,753
1903-1904	373	144,865
1904-1905	373	150,605
1905-1906	351	156,604
1906-1907	327	(e) 127,130
1907-1908	307	124,931
1908-1909	299	130,087
1909-1910	276	(f) 126,514
1910-1911	280	128,464
1911-1912	275	129,019

(a) Changes in Code which provided for a more extended course of instruction.

(b) Abolition of Fees

(c) Uncertainly existed: Cockerton judgment.

(d) Re-imposition of fees to pupils over 16

(e) Fee charged to pupils under 16 except in cases of poverty.

(f) Introduction of organised courses of instruction.

APPENDIX B

RETURN OF OCCUPATIONS OF STUDENTS ATTENDING EVENING CLASSES
IN THE ADMINISTRATIVE COUNTY OF LONDON DURING THE
SESSION 1908-9.

The statement shows, as accurately as possible, the number of workers, men and women, in the various professions, occupations and trades, who were, during the session 1908-9, attending evening classes in educational institutions in London, and the total number of persons, according to the returns based on the 1901 census, engaged in those industries. The list of occupations was not based on the classifications of the census return, but was drawn up after consultation with the principals of various polytechnics and technical institutes aided and maintained by the Council, and represents the best that can at present be done with the information given on the students' enrolment forms. It should be noted that the figures in the second column do not necessarily imply that the students are attending classes which have a direct bearing on their occupations, although it may be assumed that, in a very large proportion of the cases, that is the fact.

Profession, Occupation or Trade.		No. of persons engaged in the respective occupations according to the census return, 1901.	
	Number of persons in attendance at Evening Classes.	Under 20 years of age.	Over 20 years of age.
I. MEN.			
(1) Building trades:—			
Architects, surveyors, draughtsmen and clerks of works ...	1,209	216	2,238
Builders' clerks and other assistants ...	592	Not specified.	
Bricklayers ...	228	1,143	12,583
Carpenters and joiners ...	1,492	3,834	29,100
Painters and decorators ...	464	1,814	33,960
Plasterers ...	107	622	4,538
Plumbers ...	834	2,053	8,713
Stonemasons and carvers ...	291	507	4,496
(A) Other artisans ...	130	1,251	15,101
(2) Electrical and mechanical engineering, shipbuilding, and metal trades:—			
Electrical instrument and apparatus makers...	294	2,526	9,139
(B) { Telegraphists } { Telephonists } Telegraph and telephone service ... {	566 285 345	830	2,373
Wiremen ...	244	771	2,857
Brass finishers ...	167	579	2,710
Boiler makers, platers and rivetters ...	2,201	1,517	11,879
Fitters, turners and machine men ...	341	2,645	10,878
(C) Metal plate workers ...	412	645	1,802
Motor and cycle engineers ...	85	12	56
Chauffeurs ...	268	144	571
Pattern makers and moulders ...	57	458	3,273
Shipwrights ...	346	1,274	9,780
Smiths (blacksmiths and strikers) ...			
Other occupations under this head for which separate census statistics are not obtainable:—			
Draughtsmen ...	695		
Electrical engineers ...	1,471	5,027	24,212
Mechanical engineers ...	2,156		
Others ...	397		
(3) Civil engineering:—			
Civil and mining engineers ...	229	107	2,522
(4) Wood and furniture trades:—			
Cabinet makers ...	1,078	2,505	13,709
Coach, van and car builders and wheelwrights ...	269	875	8,726
French polishers ...	210	1,290	5,593
Upholsterers ...	295	802	4,342
(D) Other artisans ...	320	3,495	17,904
(5) Artistic crafts:—			
Designers, artists and illustrators ...	677	Not specified.	
Goldsmiths and silversmiths...	210	1,128	5,677
Jewellers ...	380		
Enamellers ...	19		
Engravers, chasers and die sinkers ...	297		
Other art metal workers ...	96	Not specified.	
Stained glass workers ...	67		
Glass-blowers and workers ...	45		
Sign writers ...	114		
Pottery and porcelain workers ...	17	323	1,403
Wood carvers and gilders ...	217	919	4,484
Art leather workers ...	30	Not specified.	
(6) Chemical industries:—			
Persons engaged in chemical manufactures and trades ...	276	1,991	7,419
Persons engaged in analytical and consulting work ...	87	Not specified.	
Electro-platers, white-metal manufacturers and pewterers ...	41	170	1,028
(7) Metallurgical industries:—			
Persons engaged in metallurgical manufactures ...	13	Not specified.	
Persons engaged in analytical and consulting work ...	16		
(8) Optical trades:—			
Manufacturing opticians (scientific instrument makers and opticians) ...	125	457	1,943
Sight-testing opticians ...	29	Not specified.	
(9) Scientific instrument makers (other than electrical instrument makers) ...	287	386	1,809
(10) Musical instrument makers ...	114	1,312	5,828
(11) Horological trades ...	135	359	3,144
(12) Legal occupations (barristers, solicitors and law clerks) ...	511	2,098	13,345
(13) Clerks ...	29,569	25,514	78,511
(14) Salesmen, agents, insurance agents, managers and travellers ...	1,923	10,579	87,891
(15) Warehousemen ...	1,620	886	4,405

- (A) Builders; slaters and tilers, paperhangers and whitewashers; gasfitters; locksmiths and bell-hangers.
 (B) The census figures probably include messengers employed by telegraph companies.
 (C) Tin-plate goods makers; brass and bronze workers; others.
 (D) House and shop fittings makers; undertakers and funeral furniture makers; willow, cane and rush workers and basket makers; wood turners; wooden box and packing case makers; sawyers; lath, wooden fence and hurdle makers; coopers and hoop makers and benders; cork and bark cutters and workers; other workers in wood.

Profession, Occupation or Trade.							Number of persons in attendance at Evening Classes.	No. of persons engaged in the respective occupations according to the census return, 1901.	
								Under 20 years of age.	Over 20 years of age.
(E)	(16)	Clothing trades	...	...	...	...	2,023	4,577	33,826
	(17)	Leather trades :—							
		Leather manufacturers and tanners	...	...	...	...	108	1,212	6,855
		Boot and shoe manufacturers	...	...	...	...	539	2,263	22,330
		Saddle and harness makers	...	...	...	...	114	489	3,433
		Other leather trades	...	...	...	...	126	Not specified.	
	(18)	Printing and lithographic trades (includes paper and stationery trades)	...	...	...	...	2,794	9,362	35,505
	(19)	Photographic trades :—							
		Photography	...	...	...	...	246	352	1,883
		Photo-process work	...	...	...	...	280		
	(20)	Bookbinding (machine work)	...	...	...	...	181	1,033	5,108
		" (forwarding)	...	...	...	...	77		
		" (finishing)	...	...	...	...	253		
	(21)	Food supply trades :—							
		Bakers and confectioners (including dealers)	...	...	...	...	591	2,989	16,197
		Grocers	...	...	...	...	342	3,285	12,424
		Other food supply trades	...	...	...	...	556	14,117	89,750
	(22)	Furriers	...	...	...	...	177	352	2,408
	(23)	Miscellaneous trades	...	...	...	...	1,211	Not specified.	
	(24)	Teachers	...	...	...	...	1,942	648	7,274
	(25)	Unskilled occupations :—							
		Civil Service (telegraph messengers, postmen and sorters)	...	...	...	...	2,346	4,293	9,712
(F)		Other messengers and errand boys	...	...	...	...	3,907	29,061	21,185
		Van boys	...	...	...	...	571		
		Labourers	...	...	...	...	2,840	13,745	126,545
		Caretakers, and office, park, lodge, gate, etc., keepers (not Government)	...	...	...	...	17	39	5,260
		No occupation stated (includes students)	...	...	...	...	9,645	197,260	76,656
	(26)	Occupations not named above :—							
		Miscellaneous occupations	...	...	...	...	1,807	Not specified.	
		Civil Service (officers and clerks)	...	...	...	...	560	2,412	13,272
		Coachmen, grooms (not domestic), and cabmen	...	...	...	...	76	2,072	30,785
		Police	...	...	...	...	3,318	4	12,019
		Merchant Service, seamen, pilots and boatmen on seas	...	...	...	...	34	815	7,346
		Bargemen, lightermen and watermen	...	...	...	...	27	600	5,041
		Soldiers	...	...	...	...	287	3,471	10,489
		Missionaries, etc.	...	...	...	...	27	38	1,036
		Dentists (including assistants)	...	...	...	...	113	145	1,100
		Authors, journalists, shorthand writers, etc.	...	...	...	...	54	58	3,408
		Gardeners (not domestic), nurserymen, seedsmen and florists	...	...	...	...	258	539	6,319
		Wigmakers and hairdressers	...	...	...	...	139	1,014	5,996
		Chemists and druggists	...	...	...	...	31	566	4,520
		Railway employees	...	...	...	...	98	2,947	17,697
		Domestic servants	...	...	...	...	37	8,021	40,205
		Tobacco manufacture	...	...	...	...	85	568	2,670
		Sanitary inspectors	...	...	...	...	22	Not specified.	
		Firemen	...	...	...	...	33		
		Librarians	...	...	...	...	59		
Total number of men							92,944	391,411	1,098,196
II. WOMEN.									
(g)	(1)	Domestic Servants	...	...	...	...	2,855	62,220	192,804
	(2)	Dressmakers	...	...	...	...	4,216	16,283	45,513
	(3)	Laundrywork	...	...	...	...	411	8,604	38,758
	(4)	Tailoresses :—							
		Men's	...	...	...	...	879	9,289	23,825
		Ladies	...	...	...	...	765		
	(5)	Printing, stationery and bookbinding trades	...	...	...	...	1,906	13,318	17,094
	(6)	Milliners	...	...	...	...	1,474	4,039	7,121
	(7)	Upholsterers	...	...	...	...	255	1,028	2,195
	(8)	Artificial flower makers and feather mounters	...	...	...	...	398	600	1,737
	(9)	Corset makers	...	...	...	...	192	669	1,245
	(10)	Hairdressers and wig makers	...	...	...	...	133	240	521
	(11)	Surgical appliance makers	...	...	...	...	104	243	329
	(12)	Artistic crafts :—							
		Designers	...	...	...	...	184	Not specified.	
		Lace makers and menders	...	...	...	...	46	116	322
		Art needleworkers and embroidresses	...	...	...	...	381	Not specified.	
		Jewellery and precious metal workers	...	...	...	...	121	219	366
		Woodcarvers	...	...	...	...	12	126	121
		Other artistic crafts	...	...	...	...	260	Not specified.	
	(13)	Telegraph and telephone operators	...	...	...	...	3,234	674	1,316
	(14)	Clerical occupations, etc. :—							
		Clerks	...	...	...	...	7,147	6,176	13,449
		Civil servants	...	...	...	...	594	583	5,213
		Saleswomen	...	...	...	...	1,653	6,900	19,722
		Stock-keepers	...	...	...	...	172	Not specified.	
		Messengers and errand girls	...	...	...	...	74		
	(15)	Nurses (sick nurses and invalid attendants, midwives)	...	...	...	...	1,042	134	16,076
	(16)	Photographers, retouchers, etc.	...	...	...	...	179	185	518
	(17)	Fine needleworkers	...	...	...	...	223	Not specified.	
	(18)	Machinists	...	...	...	...	1,311		
	(19)	French polishers	...	...	...	...	112	520	578
	(20)	Boot and shoe makers	...	...	...	...	229	1,942	4,138
	(21)	Fancy leather trades (curriers, tanners and leather goods makers)	...	...	...	...	177	971	1,005
	(22)	Confectioners	...	...	...	...	304	2,280	2,174
	(23)	Caterers, etc.	...	...	...	...	237	9,814	32,428
	(24)	Furriers	...	...	...	...	215	610	1,849
	(25)	Miscellaneous trades	...	...	...	...	2,283	Not specified.	
	(26)	Teachers	...	...	...	...	5,362	3,253	17,091
	(27)	No occupation stated (including students)	...	...	...	...	26,721	264,227	940,810
	(28)	Occupations not named above :—							
		Miscellaneous occupations	...	...	...	...	1,857	Not specified.	
		Charwomen	...	...	...	...	27	642	25,309
		Dyers	...	...	...	...	33	283	562
		Paper box and bag makers	...	...	...	...	472	1,356	4,148
		Missionaries, etc.	...	...	...	...	41	25	1,483
		Tobacco manufacture	...	...	...	...	580	2,587	2,087
		Chemists' assistants and dispensers	...	...	...	...	49	319	516
Total number of women							68,920	420,475	1,422,423

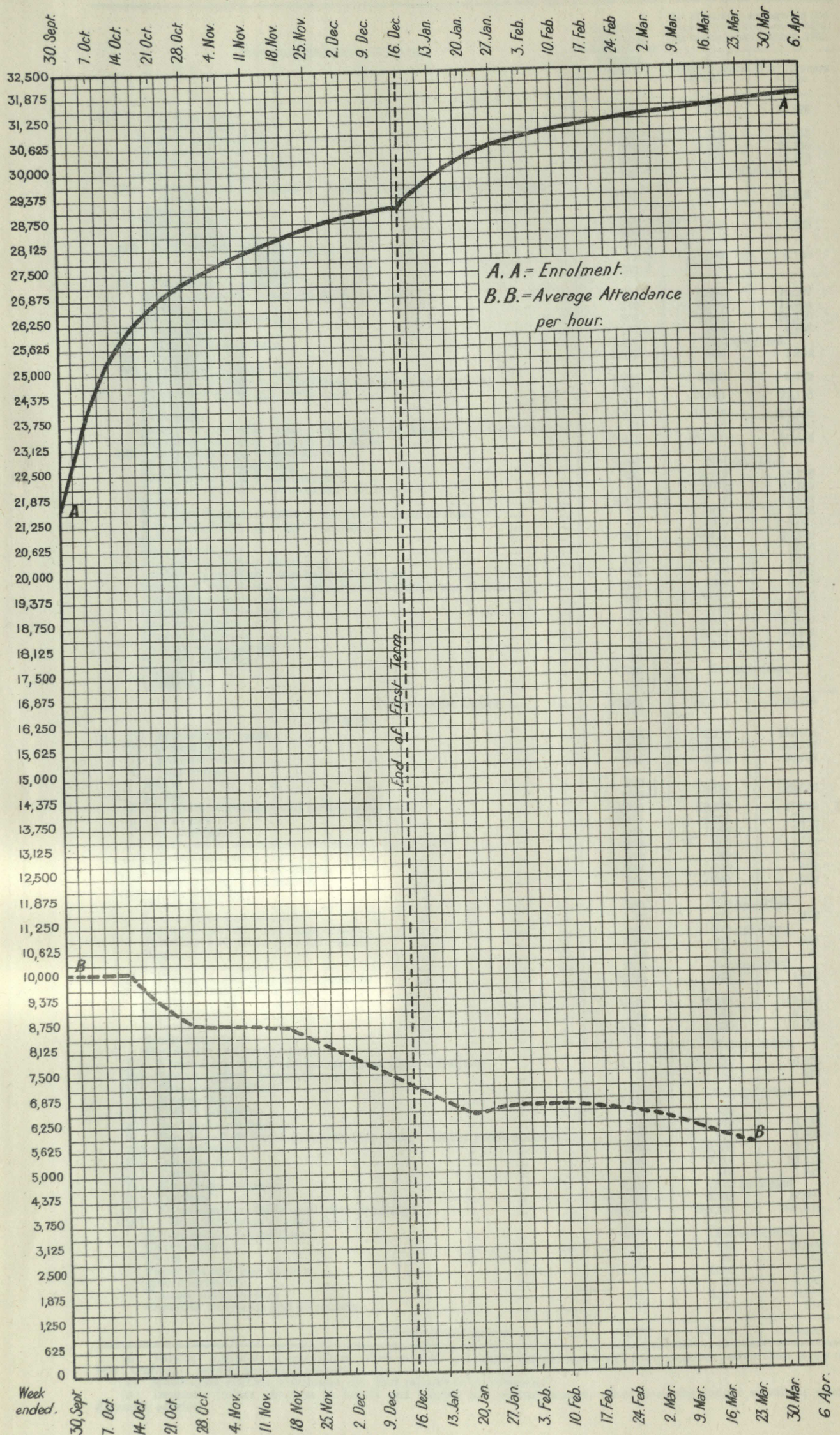
(E) Tailors; milliners; dressmakers; shirt-makers and seamstresses; makers of hats, caps, etc., other than straw or felt; umbrella, parasol and stick makers.

(F) Messengers, porters, watchmen, etc. (not railway or government).

(G) Domestic indoor servants in hotels and lodging and eating houses; other domestic indoor servants; other domestic service.

Appendix C.

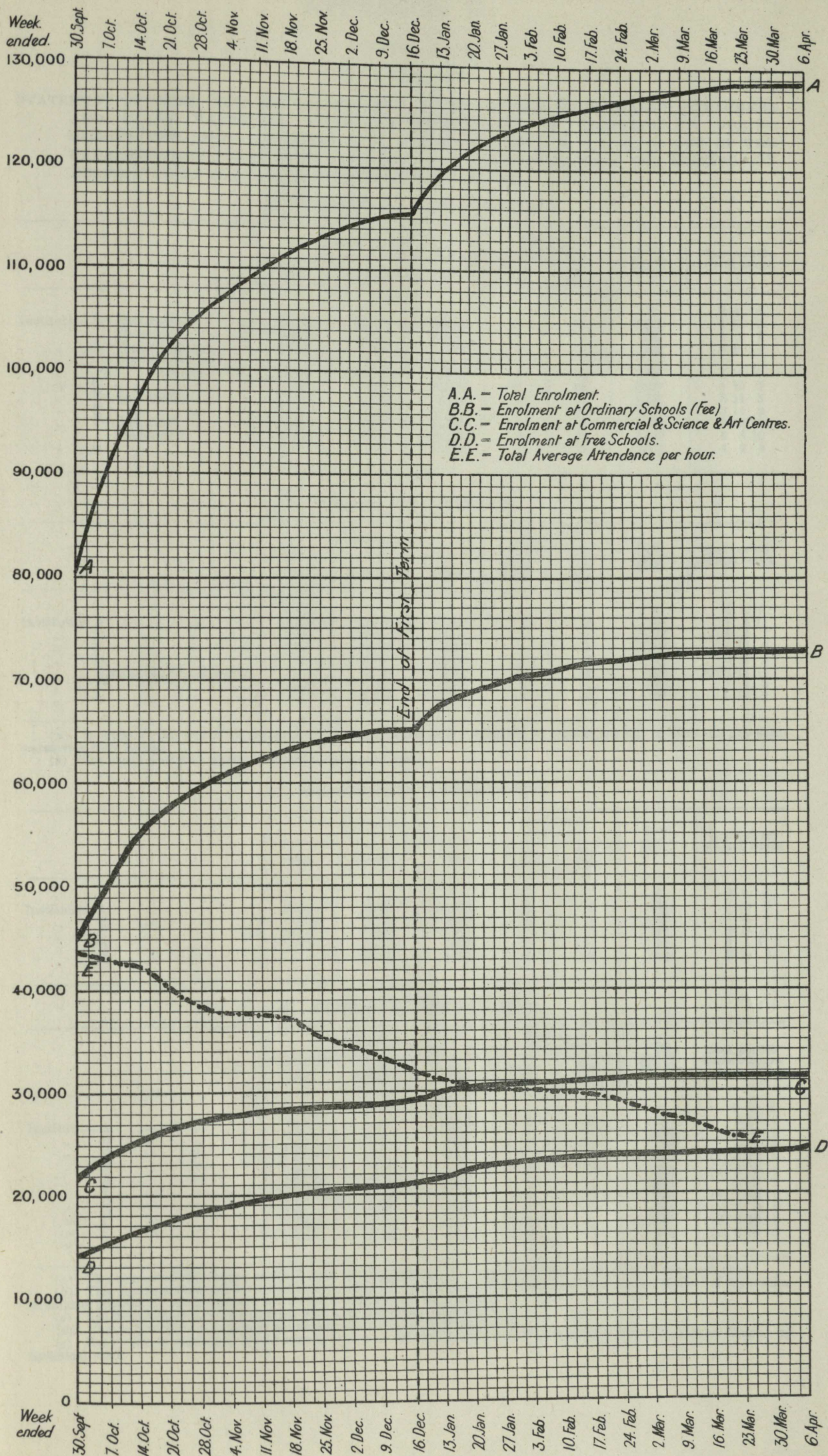
COMMERCIAL & SCIENCE & ART CENTRES—ENROLMENT AND AVERAGE ATTENDANCE PER HOUR—SESSION 1911—1912.



Appendix C.

EVENING SCHOOLS AND COMMERCIAL & SCIENCE & ART CENTRES.

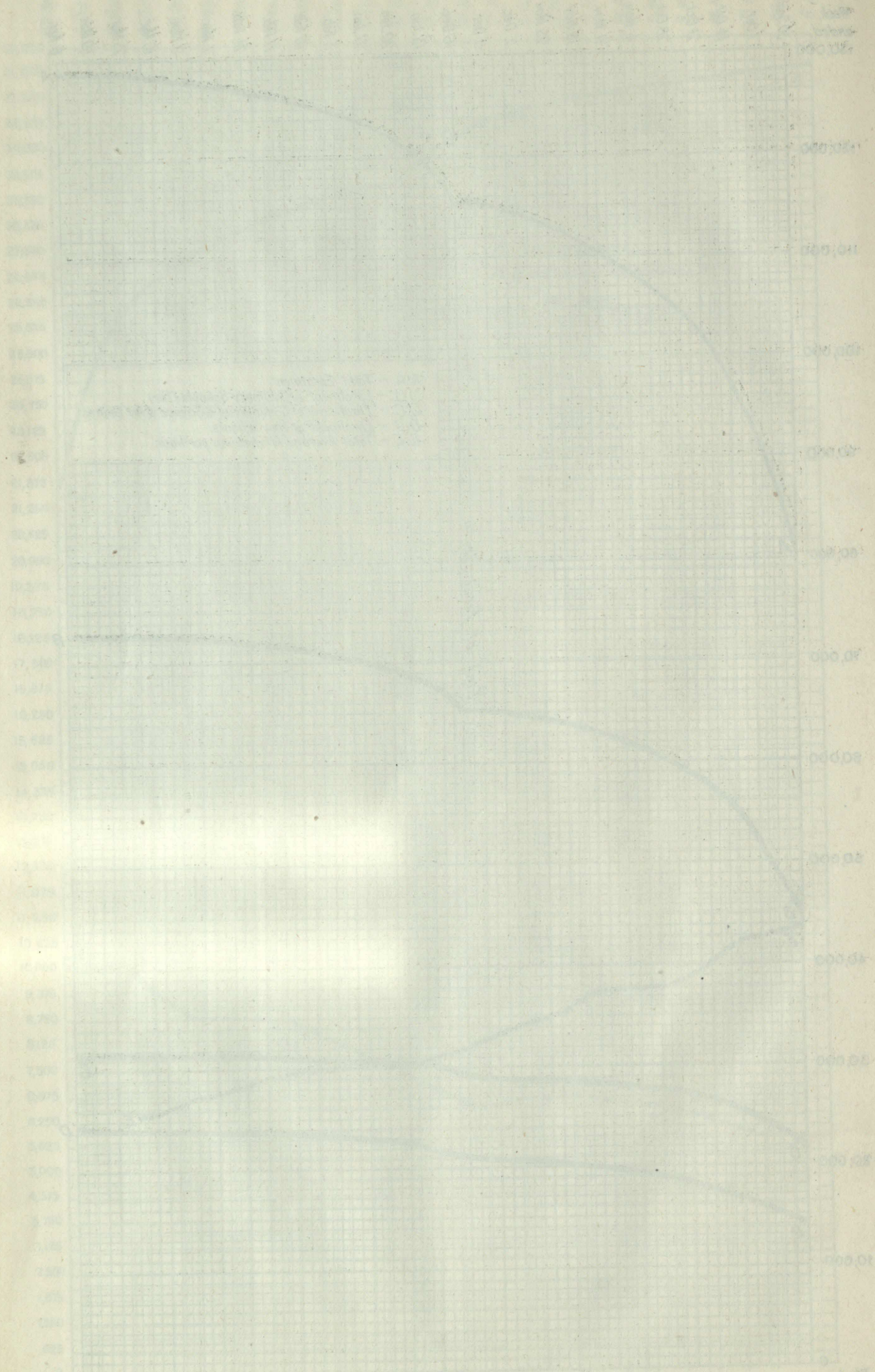
ENROLMENT AND ATTENDANCE—SESSION 1911-1912.



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STANDARD TEST METHOD FOR DETERMINING THE
TENSILE STRENGTH OF FIBERS



APPENDIX D.

TABLE I.
POLYTECHNICS.

STATEMENT SHOWING COST PER 100 STUDENT HOURS OF THE MAINTENANCE (TEACHERS AND CLASS MATERIALS ONLY) OF DEPARTMENTS OF POLYTECHNICS DURING SESSION 1909-1910. AN INSTITUTION DESIGNATED AS A, B, C, ETC., IN ONE OF THE UNDERMENTIONED TABLES IS NOT NECESSARILY IDENTICAL WITH THE INSTITUTION DESIGNATED BY THE SAME LETTER IN ANOTHER TABLE.

1. ENGINEERING DEPARTMENTS.

	Student hours.			Number of assistants.		Total cost in 1909-10.	Cost per 100 student hours.
	Day.	Evening.	Total.	Whole time.	Part time.		
Institution A—Mechanical ...	39,455	33,413	72,868	12	18	£ 3,321	£ s. d. 4 11 2
" Electrical ...	10,235	10,972	21,207	1	6	865	4 1 7
" B—Electrotechnics ...	16,204	8,109	24,313	2	1	709	2 18 4
" Engineering and building ...	79,856	28,767	108,623	6	19	1,783	1 12 10
" C ...	51,655	74,871	126,526	17	24	5,733	4 10 7
" D—Engineering ...	15,691	17,159	32,850	6	4	1,222	3 14 5
" E ...	62,250	22,764	85,014	4	21	2,303	2 14 2
" F—Electrical ...	6,914	5,007	11,921	3	1	1,191	9 19 10
" Mechanical ...	14,355	12,458	26,813	3	10	1,459	5 8 10
" G ...	—	49,784	49,784	6	14	2,054	4 2 6

2. PHYSICS DEPARTMENTS.

	Student hours.			Number of assistants.		Total cost in 1909-10.	Cost per 100 student hours.
	Day.	Evening.	Total.	Whole time.	Part time.		
Institution A ...	8,820	7,127	15,947	1	3	£ 661	£ s. d. 4 2 11
" B ...	7,794	8,680	16,474	4	—	1,339	(a) 8 2 7
" C ...	7,418	11,594	19,012	5	1	903	4 15 0
" D ...	—	14,760	14,760	—	2	741	5 0 5
" E including Mathematics ...	—	8,700	8,700	2	2	922	(b) 10 11 11
" F ...	4,120	5,459	9,579	2	1	691	7 4 3
" G ...	—	11,733	11,733	2	2	787	6 14 2

(a) In view of the nature of the work of this institution it is reasonable to expect the cost to work out at a comparatively high figure.

(b) The absence of day work accounts for the heavy cost.

3. MATHEMATICS DEPARTMENTS.

	Student hours.			Number of assistants.		Total cost in 1909-10.	Cost per 100 student hours.
	Day.	Evening.	Total.	Whole time.	Part time.		
Institution A ...	23,746	7,331	31,077	1	3	£ 591	£ s. d. 1 18 0
" B ...	3,359	5,444	8,803	1	1	665	7 11 1
" C ...	3,766	8,385	12,151	1	2	583	4 15 11
" D ...	6,855	2,978	9,833	2	—	796	8 1 11
" E ...	—	33,660	33,660	2	6	912	2 14 2

4. CHEMISTRY DEPARTMENTS.

	Student hours.			Number of assistants.		Total cost in 1909-10.	Cost per 100 student hours.
	Day.	Evening.	Total.	Whole time.	Part time.		
Institution A ...	8,715	14,149	22,864	2	10	£ 1,309	£ s. d. 5 14 6
" B ...	15,369	11,588	26,957	5	—	1,628	6 0 9
" C ...	7,204	7,181	14,385	1	4	728	5 1 3
" D ...	—	5,635	5,635	—	3	547	(a) 9 14 2
" E ...	2,129	6,653	8,782	1	3	713	(a) 8 2 4
" F ...	7,997	11,542	19,539	7	4	1,261	6 9 1
" G ...	—	7,583	7,583	—	3	580	(b) 7 13 0
" H ...	—	10,654	10,654	2	9	785	(c) 7 6 8
" I ...	9,241	8,006	17,247	3	5	1,483	(d) 8 12 0
" J ...	—	8,558	8,558	2	—	766	(e) 8 19 0

(a) The comparatively heavy cost is due to the smallness of the department and the nature of the work done.

(b) This figure is accounted for by the comparatively small size of the department and by the method of allocation of salaries adopted by the governors and by the rebuilding of the premises.

(c) Not including salary of principal who acts as head of department.

(d) This polytechnic is in nearly all departments above the average cost.

(e) Heavy cost is accounted for by non-inclusion of the hours worked in the secondary school in classes taught by technical staff.

5. ART DEPARTMENTS.

				Student hours.			Number of assistants.		Total cost in 1909-10.	Cost per 100 student hours.
				Day.	Evening.	Total.	Whole time.	Part time.		
Institution A	...	...	...	(not separated)			2	13	£ 1,152	£ s. d. 3 6 3
" B	...	...	...	14,429	6,806	21,235	—	6	1,060	4 19 10
" C	...	...	...	28,085	6,376	34,461	2	2	431	1 5 0
" D	...	...	...	635	4,017	4,652	—	2	347	7 9 2
" E	...	...	...	3,538	22,018	25,556	1	19	1,550	(a) 6 1 4
" F	...	...	...	47,533	25,684	73,217	6	4	1,757	2 8 0
" G	...	...	...	—	8,751	8,751	—	11	813	(b) 9 5 10
" H	...	...	...	14,306	6,612	20,918	—	5	1,175	5 12 4
" I	...	...	...	(not separated)			6	3	988	2 18 0

(a) High figures due to nature of work.
(b) Heavy cost due to comparatively small size of department and to nature of work.

6. WOMEN'S DEPARTMENTS.

				Student hours.			Number of assistants.		Total cost in 1909-10.	Cost per 100 student hours.
				Day.	Evening.	Total.	Whole time.	Part time.		
Institution A	...	...	...	140,754	22,466	163,220	17	23	£ 3,341	£ s. d. 2 0 11
" B	...	...	...	267,321	13,086	280,407	18	6	2,621	0 18 8
" C	...	...	...	23,284	6,693	29,977	3	9	667	2 4 6
" D	...	...	...	53,950	17,407	71,357	11	5	1,777	2 9 10
" E	...	...	...	30,918	1,461	32,379	2	3	443	1 7 4
" F	...	...	...	50,546	4,915	55,461	5	5	1,293	2 6 8
" G	...	...	...	42,789	5,134	47,923	12	3	899	1 17 6

7. NATURAL SCIENCE DEPARTMENTS.

				Student hours.			Number of assistants.		Total cost in 1909-10.	Cost per 100 student hours.
				Day.	Evening.	Total.	Whole time.	Part time.		
Institution A	(a) Botany	...	...	4,045	3,645	7,690	1	2	£ 557	£ s. d. 7 4 10
	(b) Zoology	...	...	1,950	2,833	4,833	2	—	558	11 10 11
	(c) Geology	...	...	1,292	1,498	2,790	—	2	230	8 4 10
		...	...	1,605	6,220	7,825	—	1	396	5 1 3
" B	...	...	...	1,633	15,162	16,795	1	10	1,073	6 7 9
" C	...	...	...							

TABLE II.

MAINTAINED TECHNICAL INSTITUTES AND SCHOOLS OF ART.

RETURN AS TO STUDENT HOURS, NUMBER OF TEACHERS, AND COST OF INSTRUCTION IN CERTAIN REPRESENTATIVE SUBJECTS AND IN MISCELLANEOUS SUBJECTS IN SESSION 1909-10.

N.B. The cost represents teachers' salaries and cost of materials only.

1. ENGINEERING.

Institution.		Student hours.			Number of assistants.		Total cost 1909-10.	Cost per 100 student hours.
		Day.	Evening.	Total.	Whole time.	Part time.		
F.	...	—	12,703	12,703	1	6	£ 717	£ s. d. 5 12 11
I.	...	829	25,012	25,841	2	18	1,213	4 13 11
L.	...	—	18,960	18,960	—	11	833	4 7 10
O.	...	—	11,488	11,488	—	8	349	3 0 9

2. PHYSICS.

Institution.	Student hours.			Number of assistants.		Total cost 1909-10.	Cost per 100 student hours.
	Day.	Evening.	Total.	Whole time.	Part time.		
F.	—	2,324	2,324	—	3	£ 119	£ s. d. 5 2 5
H.	—	1,221	1,221	—	1	47	3 17 0
I.	1,774	8,745	10,519	—	7	623	5 18 5

3. MATHEMATICS.

Institution.	Student hours.			Number of assistants.		Total cost 1909-10.	Cost per 100 student hours.
	Day.	Evening.	Total.	Whole time.	Part time.		
F.	—	2,614	2,614	—	1	£ 89	£ s. d. 3 8 1
I.	—	7,123	7,123	—	11	165	2 6 4
L.	—	4,560	4,560	—	4	174	3 16 4

4. CHEMISTRY.

Institution.	Student hours.			Number of assistants.		Total cost 1909-10.	Cost per 100 student hours.
	Day.	Evening.	Total.	Whole time.	Part time.		
F.	—	5,022	5,022	1	1	£ 468	£ s. d. 9 6 5
H.	—	2,435	2,435	—	2	94	3 17 2
I.	1,227	2,756	3,983	—	2	173	4 6 10

5. ART.

Institution.	Student hours.			Number of assistants.		Total cost 1909-10.	Cost per 100 student hours.
	Day.	Evening.	Total.	Whole time.	Part time.		
B.	86,664	55,491	142,155	3	46	£ 3,732	£ s. d. 2 12 6
C.	31,424	26,003	57,427	4	14	1,220	2 2 6
D.	74,668	80,362	155,030	4	60	5,086	3 5 7
E.	28,557	18,246	46,803	1	13	941	2 0 3
F.	18,157	13,438	31,595	1	9	799	2 10 7
G.	41,974	29,087	71,061	1	24	1,853	2 12 2
H.	11,537	8,886	20,423	1	7	520	2 10 11
I.	609	12,155	12,764	1	9	563	4 8 3
J.	19,095	13,495	32,590	1	11	719	2 4 1
K.	—	4,099	4,099	—	5	423	10 6 5
M.	—	14,239	14,239	—	6	484	3 8 0
O.	29,184	18,623	47,807	—	13	1,168	2 8 10

6. WOMEN'S CLASSES.

Institution.	Student hours.			Number of assistants.		Total cost 1909-10.	Cost per 100 student hours.
	Day.	Evening.	Total.	Whole time.	Part time.		
A.	—	2,047	2,047	—	9	£ 63	£ s. d. 3 1 6
D.	—	420	420	—	1	21	5 0 0
H.	28,306	4,568	32,874	3	5	506	1 10 9
I.	67,350	4,141	71,491	9	2	1,009	1 8 3
N.	100,227	5,485	105,712	9	5	1,360	1 5 9
P.	166,305	663	166,968	15	3	1,936	1 3 2
Q.	75,962	—	75,962	6	1	628	0 16 6

7. NATURAL SCIENCE.

Institution.	Student hours.			Number of assistants.		Total cost 1909-10.	Cost per 100 student hours.
	Day.	Evening.	Total.	Whole time.	Part time.		
F.	—	6,944	6,944	1	4	£ 434	£ s. d. 6 5 0
I.	1,207	1,245	2,452	—	2	86	3 10 2

8. MISCELLANEOUS CLASSES.

Institution.	Student hours.			Number of assistants.		Total cost 1909-10.	Cost per 100 student hours.
	Day.	Evening.	Total.	Whole time.	Part time.		
A. Gymnastics ; Singing ; Technical Drawing ; Day Technical School for Boys.	37,720	2,516	40,236	2	7	£ 510	£ s. d. 1 5 4
B. English ; Literature ; Practical Geometry ; Building Construction.	2,709	1,003	3,712	—	4	116	3 2 6
D. Structural Mechanics ; Upholstery Polishing ; Building Construction.	—	3,905	3,905	—	5	169	4 6 7
F. Furnishing and Building Trade and Architectural Classes.	—	20,522	20,522	—	22	899	4 7 7
H. Commercial, Literary and Building Construction Classes.	—	12,659	12,659	—	9	320	2 10 7
I. Building Trade and Gymnastic Classes ; Day Technical School for Boys.	43,902	8,225	52,127	—	21	1,088	2 1 9
K. Architectural and Building Trade Classes ; Day Technical School for Boys.	80,143	43,654	123,797	7	27	2,777	2 4 10
L. Nautical and Carpentry Classes ; Day Technical School for Boys.	84,960	4,466	89,426	3	10	1,464	1 12 9
M. Photo-Process Classes.	11,667	15,657	27,324	2	12	1,134	4 3 0
N. Furnishing and Building Trade Classes ; Day Technical School for Boys.	116,400	29,733	146,133	7	25	3,078	2 2 2
O. Classes in general subjects for Gas-fitter Apprentices ; Cabinet-making and Building Trade Classes.	12,365	8,502	20,867	—	12	464	2 4 6

APPENDIX E.

FEES.

(1). *Fees in evening schools.*—Various plans were tried by the late authority in regard to the payment of fees by the individual student. In the earliest days of the evening school movement fees were charged; at a later time all the schools were free; and finally small fees were charged in most of the ordinary schools, and somewhat higher fees in the commercial, science and art centres. The fees at present charged are as follows:—

Type of School.	Fees for a Session.
Commercial, science and art centres ...	Commercial subjects—2s. 6d. to students over 16, and 1s. 6d. to students under 16 for any number of subjects on any number of evenings. Science and art subjects—5s. to students over 16, 2s. 6d. to students under 16 for any number of subjects on any number of evenings.
Evening schools	1s. for any number of subjects any number of evenings.
Free schools	} No Fees.
Schools for deaf	

EXCEPTIONS.—(i.) Pupils who are unable to pay the fee and who cannot obtain the instruction they desire in a free school within a reasonable distance are admitted free by the Responsible Teachers, subject to the subsequent approval of the Managers. All cases are reported to the Sub-Committee
(ii.) Soldiers in uniform are admitted free.

(2). *Fees in technical institutes and schools of art.*—The following statement shows the range of fees payable for instruction in various subjects in the Council's Technical Institutes and Schools of Art:—

SUBJECT.	Day Classes.		Evening Classes.	
	From	To	From	To
Day Technical Schools for Boys	30s. a year (10s. a term)	£9 9s. a year (£3 3s. a term)	—	—
Day Trade Schools for Girls	30s. a year (10s. a term)	in all cases.	—	—
Day Domestic Economy Schools for Girls ...	£1 a year (1s. a week)	£3 a year	—	—
Art	5s. a session	£15 15s. a year	1s. a session	21s. a session
Engineering and Building	—	—	1s. a session	21s. a session
Science	—	—	1s. a session	21s. a session
Women's Classes	2s. 6d. a session	12s. 6d. a session	1s. a session	30s. a session
Bookbinding, Printing, Photo-Process Work ...	30s. a session	£9 a session	4s. 6d. a session	10s. a session
Carpentry and Joinery	—	—	4s. 6d. a session	10s. a session
General Classes—Music, Gymnastics, English, Mathematics, Commercial Subjects, etc., etc.	2s. 6d. a session	£4 4s. a course.	1s. a session	£2 4s. (for a course of 12 music lessons)
Artistic Crafts	15s. a session	£1 13s. a session	1s. a session	21s. a session

Persons under 21 years of age *bonâ fide* engaged in the trade upon which the teaching of the School or Institute has a distinct bearing are, as a rule, admitted free to evening classes. It is also customary to admit unemployed persons to classes without payment of fee while they are unemployed; but each case is considered on its merits. Free admission is granted in special cases where the student's capabilities show great promise, but where there is at the same time inability to pay the fee. Each of these cases is also considered on its merits.

(3). *Polytechnics and other institutions.*

There is much variation in the fees charged for the various subjects of instruction, and some disparity between institutions providing similar classes. The sessional fee is as low as 2s. 6d. for apprentices' and some other classes, whilst the normal fee for technical classes may be said to vary from 5s. to 10s. for the session. As regards University courses, the sessional fees vary from £2 to £5 5s. In the case of day instruction the range of fees extends from a few shillings for single subjects up to £40 for a technological course.

1. STATEMENT SHOWING THE AWARDS GAINED BY LONDON STUDENTS IN THE NATIONAL COMPETITION SINCE 1907.

APPENDIX F.

Type of Institution.	1907.					1908.					1909.				
	Gold.	Silver.	Bronze.	Books.	Commended.	Gold.	Silver.	Bronze.	Books.	Commended.	Gold.	Silver.	Bronze.	Books.	Commended.
Maintained Technical Institutes and Schools of Art	1	9	17	42	82	2	6	25	28	67	1	8	22	48	52
Aided Polytechnics and Schools of Art	1	1	14	36	89	1	8	23	20	76	1	9	22	28	47
Maintained Evening Schools	—	—	1	4	9	—	2	2	2	3	—	—	3	—	1
Totals for London	2	10	32	82	180	3	16	50	50	146	2	17	47	76	100
Total No. of Awards in England and Wales	13	81	215	409	1,106	12	79	269	360	1,008	8	88	236	402	811

Type of Institution.	1910.					1911.					1912.				
	Gold.	Silver.	Bronze.	Books.	Commended.	Gold.	Silver.	Bronze.	Books.	Commended.	Gold.	Silver.	Bronze.	Books.	Commended.
Maintained Technical Institutes and Schools of Art	4	8	24	44	96	4	13	26	50	77	4	17	20	32	49
Aided Polytechnics and Schools of Art	3	11	9	35	71	—	14	21	39	60	2	4	12	26	39
Maintained Evening Schools	—	—	—	1	3	—	—	—	3	2	—	—	—	2	2
Totals for London	7	19	33	80	170	4	27	47	92	139	6	21	32	60	90
Total No. of Awards in England and Wales	14	91	194	476	1,005	8	99	252	535	953	12	98	193	363	715

2. TABLE SHEWING SUCCESSES OF STUDENTS IN THE COUNCIL'S EVENING SCHOOLS, TECHNICAL INSTITUTES, AND AIDED INSTITUTIONS AT THE TECHNOLOGICAL EXAMINATIONS OF THE CITY AND GUILDS OF LONDON INSTITUTE.

Type of Institution.	1907.			1908.			1909.			1910.			1911.		
	Passes.	Hons.	Total.	Passes.	Hons.	Total.	Passes.	Hons.	Total.	Passes.	Hons.	Total.	Passes.	Hons.	Total.
Council Technical Institutes ...	433	101	534	386	80	466	361	92	453	339	89	428	333	82	415
Aided Institutes...	1,507	382	1,889	1,573	411	1,984	1,594	383	1,977	1,537	350	1,887	1,320	315	1,635
Evening Schools...	113	—	113	127	—	127	118	—	118	123	—	123	97	2	99
Totals ...	2,053	483	2,536	2,086	491	2,577	2,073	475	2,548	1,999	439	2,438	1,750	399	2,149
Totals for British Isles ...	10,685	2,369	13,054	10,664	2,394	13,058	11,154	2,511	13,665	11,406	2,699	14,105	11,595	2,611	14,206

3. TABLE SHOWING SUCCESSES OF STUDENTS IN THE COUNCIL'S EVENING SCHOOLS, TECHNICAL INSTITUTES, SCHOOLS OF ART AND AIDED INSTITUTIONS AT THE LOCAL SCIENCE AND ART EXAMINATIONS OF THE BOARD OF EDUCATION.

Type of Institution.	1907*							1908*							1909*†							1910‡					1911§		
	Science.				Art.	Total.	Science.				Art.	Total.	Science.				Art.	Total.	Science.				Art.	Total.					
	St. 1.	St. 2.		St. 3 & Hons.			St. 1.	St. 2.		St. 3 & Hons.			St. 1.	St. 2.		St. 3 & Hons.			St. 1.	St. 2.		St. 3 & Hons.			St. 1.	St. 2.		St. 3 & Hons.	
		St. 1.	St. 2.					St. 1.	St. 2.					St. 1.	St. 2.					St. 1.	St. 2.					St. 1.	St. 2.		St. 1.
Council Institutions	...	199	159	50	539	1007	293	179	71	790	1333	289	339	117	991	1736	281	325	96	944	1646	362	271	47	894	1574			
Aided Institutions	...	1726	1810	435	1316	5287	1572	1785	583	1322	5262	1517	1936	765	1210	5428	1437	1898	790	1017	5142	1394	1694	669	918	4675			
Evening Schools	...	538	433	24	862	1857	514	466	39	801	1820	443	388	16	839	1686	209	231	24	583	1047	188	211	8	412	819			
Totals...	...	2463	2402	509	2777	8151	2379	2430	693	2913	8415	2249	2663	898	3040	8850	1927	2454	910	2544	7835	1944	2176	724	2224	7068			
Totals in England and Wales—																													
Mathematics Stages 1—7	...					5003					4439					3724					3077					2509			
Other Subjects	...	20647	15647	3206	31879	71379	20066	16820	3422	30894	71202	19238	15141	4498	29597	68474	18869	15068	3883	27685	65505	20628	14834	3834	22464	61760			

* Including Day Examinations.

† In 1909 the number of Day Examinations was reduced to two subjects (Model and Freehand Drawing)

‡ No Day Examinations.

§ In 1907 and 1908 the figures include Hackney Institute.

4. TABLE SHEWING SUCCESSES OF STUDENTS IN THE COUNCIL'S INSTITUTES, AIDED INSTITUTES, AND EVENING SCHOOLS AT THE EXAMINATIONS OF THE ROYAL SOCIETY OF ARTS, FROM 1907 TO 1911.

Type of Institution.	1907.				1908.				1909				1910.				1911.							
	St. I.		St. II.		St. III.		Total.		St. I.		St. II.		St. III.		Total.		St. I.		St. II.		St. III.		Total.	
	St. I.	St. II.	St. III.	Total.	St. I.	St. II.	St. III.	Total.	St. I.	St. II.	St. III.	Total.	St. I.	St. II.	St. III.	Total.	St. I.	St. II.	St. III.	Total.	St. I.	St. II.	St. III.	Total.
Council Institutes ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Aided Institutes ...	149	516	183	848	152	432	195	779	227	531	225	983	227	455	245	927	204	639	299	1,142	...	...	...	...
Evening Schools ...	942	2,332	767	4,041	1,067	1,887	729	3,683	1,271	1,828	678	3,777	1,400	1,568	682	3,650	1,119	1,879	489	3,487	...	...	...	...
TOTALS ...	1,091	2,848	950	4,889	1,219	2,319	924	4,462	1,478	2,374	912	4,784	1,627	2,023	933	4,583	1,323	2,518	795	4,636	...	...	...	...
Totals for Great Britain and Ireland ...	5,338	7,686	3,021	16,045	6,324	8,182	3,114	17,620	6,448	7,698	2,755	16,901	7,236	7,728	3,098	18,062	7,706	9,050	3,116	19,872	...	...	...	...

5. TABLE SHEWING SUCCESSES OF STUDENTS IN THE COUNCIL'S EVENING SCHOOLS, TECHNICAL INSTITUTES, AND AIDED INSTITUTIONS AT THE EXAMINATIONS OF THE LONDON CHAMBER OF COMMERCE FROM 1907 TO 1911.

Institution.	1907.				1908.				1909.				1910.				1911.			
	Junior.	Senior.	Teachers.		Junior.	Senior.	Teachers.		Junior.	Senior.	Teachers.		Junior.	Senior.	Teachers.		Junior.	Senior.	Teachers.	
Aided Institutions	33	70	13	9	50	77	9		53	81	13		61	72	4		75	81	5	
Maintained Institutions† ..	—	2	—	—	2	3	—		2	5	1		2	4	1		3	—	1	
Evening Schools ...	339	464	39	54	537	473	54		698	587	54		760	450	46		789	573	44	
Totals	372	536	52	63	589	553	63		753	673	68		823	526	51		867	654	50	
	960				1,205				1,494				1,400				1,571			
Totals for British Isles ...	2,033	1,107	142	173	2,980	1,104	173		3,325	1,451	177		3,713	1,382	182		4,038	1,635	196	
	3,282				4,257				4,953				5,277				5,869			

† Norwood Technical Institute.

6. EVENING SCHOOLS.

RESULTS OF EXAMINATIONS IN FOREIGN LANGUAGES.

SESSION 1909-10.

Subject.			Royal Society of Arts.								National Union of Teachers.								Chamber of Commerce.				Total.	
			Stage I.		Stage II.		Stage III.		Viva Voce.		Elementary.		Intermediate.		Advanced.		Oral.		Junior.		Senior.			
			Number presented.	Number passed.	Number presented.	Number passed.	Number presented.	Number passed.	Number presented.	Number passed.	Number presented.	Number passed.	Number presented.	Number passed.	Number presented.	Number passed.	Number presented.	Number passed.	Number presented.	Number passed.	Number presented.	Number passed.	Number presented.	Number passed.
French...	...	...	310	209	232	177	197	165	149	124	146	97	34	18	24	20	5	4	54	38	50	35	1201	887
German	...	...	79	34	39	25	28	21	19	14	49	38	22	13	10	5	5	5	31	18	16	7	298	180
Italian ...	...	...	7	5	4	4	4	2	—	—	—	—	—	—	—	—	—	—	8	5	1	1	24	17
Spanish	...	...	24	12	26	19	3	3	5	2	3	2	5	4	5	4	—	—	25	16	11	4	107	66
Dutch ...	...	...	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	1	1	—	—	1	1
Portuguese	...	...	—	—	3	2	1	1	—	—	—	—	—	—	—	—	—	—	1	1	—	—	5	4
Russian	...	...	—	—	3	2	2	2	—	—	—	—	—	—	—	—	—	—	—	—	—	—	5	4
Total	...	...	420	260	307	229	235	194	173	140	198	137	61	35	39	29	10	9	120	79	78	47	1641	1159

APPENDIX G.

List of more important reports on technical education and evening schools.

1892.

* Report to the special committee on technical education, by H. Llewellyn Smith.

1896.

‡ Report by special sub-committee on the teaching of chemistry.

1899.

* Report by special sub-committee on building trades.

1902.

* Application of science to industry; report of special committee.

1904.

‡‡ Art teaching in evening schools, by Messrs. Lethaby and Christie.

1905.

‡‡ Teaching of literature in evening schools; report by special inspector (Mr. Oliphant).

‡‡ Physical exercises in evening schools; report of section.

‡‡ Evening schools in Scotland and the Midlands; report by educational adviser.

‡‡ Technical training for girls; report of joint committee.

1906.

* Report of section on apprenticeships. The apprenticeship question.

‡‡ Teaching of dressmaking; report by educational adviser.

‡‡ Social gatherings and recreation in evening schools; report of section.

1907.

* Occupations suitable for women; report by Mrs. Oakeshott.

1908.

‡‡ Nature and extent of work of Central School of Arts and Crafts, and relation to other art schools; report by educational adviser and education officer.

† Report of Consultative Committee on book-binding.

‡‡ Cost of trade schools and day technical schools; report by education officer and controller.

1909.

‡‡ Halifax: organisation of evening instruction in (Mr. Rich's report).

† The polytechnics and some other institutions: survey of (Education officer).

‡‡ Report of conference on evening schools.

† Technical education in Great Britain and Germany (Dr. Rose).

‡‡ Education and industry in Coventry. Visit of officials (Messrs. Briscoe and Rich).

‡‡ Technical education in connection with leather trades (Mr. Briscoe).

¶ Report of section on apprenticeships (extract from Council minutes).

1910.

‡‡ Survey of first aid instruction (Medical officer and education officer).

‡‡ Juvenile labour in Germany; report (organiser, trade schools for girls).

§ The relation of science to industry and commerce. (Read before British Association—R. Blair.)

‡‡ Trade schools for girls (organiser, trade school for girls).

1911.

† Technical optics (Education officer and educational adviser).

Paper on trade schools. (Read to Imperial Conference on education—R. Blair.)
(Published by Wyman and Co.)

‡‡ Musical instrument making industry (Education officer).

† Furnishing Trades Consultative Committee: Report of.

† Silversmithing Trades Consultative Committee: Report of.

1912.

* Mercantile Marine: training for (organiser, trade schools for boys).

† Block grants, 1911-14: report on assessment of (Education officer).

† Trade schools and trade scholarships for boys: re-organisation of (Education officer).

† Attendance at evening schools and centres (Education officer).

Building trades in London: training for (organiser, trade schools for boys). (To be published shortly.)

* Can be obtained from Messrs. P. S. King and Son.

† Can be obtained only by members of Council or Education Committee.

‡ Only a few copies left.

¶ Appears in full on Council minutes.

§ 30 copies left.

APPENDIX H.

Note on continuation schools in Germany.

The distinctive feature of the continuation school system in Germany is the recognition of the principle of compulsory attendance. This is enunciated in the Imperial Labour Law of 1891, which imposes the statutory obligation on all employers of labour to give their employees under 18 years of age such leave of absence from work for the purpose of attending continuation schools as the local authority may prescribe. It also gives to the local authorities the power to make bye-laws requiring compulsory attendance at continuation schools. (See clauses 120, 142, 150.) This law was amended in 1900, when employees under 18 are defined as male workers, female clerks and female apprentices. A decree of 1904, issued by the Minister of Industry and Commerce, enjoins that such compulsory classes should be held during the working-day and not in the evening or on Sundays.

The compulsory continuation system for boys has now been generally, though not universally, adopted throughout the German Empire. A notable exception is Hamburg, where a voluntary system, worked through the guilds, still remains. Each State has been free to adopt and develop its own system of compulsory school, and considerable variety as to hours and other details of organisation exists. In most urban centres the survival of the guild system with its educational tradition has greatly facilitated the development of the continuation schools, and has rendered possible a highly differentiated system of trade courses.

The most striking example of this is offered by Munich, where, under the guidance of Dr. Kerschensteiner, a complete system of compulsory technical schools offers specially arranged courses of instruction for every type of trade pursued in the town by male workers.

The development of the continuation school system has been mainly in relation to boys. Comparatively little progress has been made with regard to girls.

Out of 27 States which had adopted the compulsory system for boys in the year 1908, five only had included provision for girls in their system, and those only in a lesser degree. It may be noted that girls do not yet find a place in Dr. Kerschensteiner's scheme. Girls leaving the day school from the 7th class are required to attend the so-called "Sonntags-schule" on Sundays and Wednesdays. Girls leaving from the 8th class are required to attend for one year only. They may, if they wish, instead join the optional schools in commercial or domestic subjects.

The most notable advance with regard to girls is the decision of the Berlin authority to put the compulsory continuation school courses for girls on a similar footing to those for boys. The scheme, which comes into force in April, 1913, is described below.

Boys.

As regards the boys, in order to meet present industrial conditions, two distinct types of continuation school have been generally adopted, and exist, as a rule, side by side, viz.—

(1) General continuation classes (without any particular trade or technical bias) for boys in unskilled work.

(2) Technical or trade classes for apprentices or others engaged in skilled trades.

It appears to be the rule that no pupil is admitted to a class of type (2) unless he is actually employed in a specific skilled trade. The classes arranged for the unskilled workers do not offer opportunities for the boys to qualify themselves to pass from the ranks of unskilled to skilled labour.

As a rule a shorter period of weekly attendance is required of boys in unskilled than in skilled work.

With regard to the technical or trade classes, two distinct lines of development are to be noted. These may be illustrated with reference to the school systems of Prussia and of Munich.

In the former, theoretical instruction only is provided; in the latter, Dr. Kerschensteiner has made the combination of workshop with theoretical instruction a main feature of his system.

Munich and Berlin present, perhaps, the most interesting examples of the German system. Berlin deals with the largest numbers, and Munich shows the most complete and highly specialised organisation.

(a) *Munich*—The system of technical continuation courses as at present conducted has been in force since 1908. In 1907 the school-leaving age for boys was raised to 14. All boys are required to attend continuation classes until the age of 18.

All boys who are apprenticed to skilled trades join the appropriate trade course. Boys in unskilled work attend at the general continuation courses.

The first cycle of the three-years' compulsory course was completed in 1911, the numbers in attendance in each year being as follows—

1908-9	...	...	...	...	...	7,143
1909-10	...	...	...	...	...	8,109
1910-11	...	...	...	...	...	9,758
1911-12	...	...	...	...	...	10,340

The difference between the numbers attending in 1910-11 and 1911-12 may be regarded as the normal rate at which the labour market is recruited with school-leaving labour. It is interesting to note that the proportion of boy labourers (in unskilled work) to boy apprentices (in skilled trades) is very small. Of the total given for 1910-11, 1,018 only are in unskilled work, and in 1911-12, 1,019, *i.e.*, rather less than one-ninth of the whole number in attendance.

Boys attending trade classes are required to give from eight to ten hours' attendance at the continuation schools per week. Other boys give seven hours.

Munich provides 55 special courses of trade instruction. In addition, there are ten schools for unskilled workers.

The curriculum of all trade schools includes religious instruction, citizenship, trade composition, arithmetic and bookkeeping, knowledge of wares, workshop drawing, practical and theoretical instruction appropriate to the trade.

In the ordinary continuation courses, all trade instruction is omitted; manual instruction and physical exercises are included in the general class subjects.

These continuation classes are conducted by specially trained and qualified teachers, in special buildings equipped for the purpose.

(b) *Berlin*—Compulsory continuation schools for boys have been established since 1906-7. In 1908 the regulations were revised, and the by-laws at present in force were issued. These require all boys employed in industrial or commercial pursuits to attend continuation schools until the end of the half-year in which they complete their seventeenth year.

Boys apprenticed to skilled trades must attend for 6 hours weekly. Boys in unskilled work must attend for 4 hours weekly. The classes are all held during the working day.

Boys in certain callings are exempt from compulsory attendance, as are also those attending certain recognised voluntary continuation or technical schools.

Aliens, physically defective, or mentally deficient may be excluded. (See also regulations for girls.)

The instruction includes general subjects, and in the classes for trade apprentices appropriate theoretical trade instruction.

No practical trade instruction is included.

Figures of attendances for the year 1911-12 are not available.

In 1908 (winter session) the total* in attendance at the compulsory schools was 30,392, divided into 988 classes.

These are classified as under—

I. Building trades	...	...	...	2,446 boys in	92 classes
II. Metal workers	...	...	...	6,855	236
III. Art crafts	...	...	...	2,702	91
IV. Tailoring, shoemaking	...	...	...	935	30
V. Bakers	...	...	...	1,255	41
VI. Barbers, hairdressers	...	...	...	455	15
VII. Commercial	...	...	...	4,842	157
VIII. Unskilled employment	...	...	...	10,492	308
IX. Other trades	...	...	...	410	18
				<u>30,392</u>	<u>988</u>

Girls.

The following are the main features of the regulations which have been made for compulsory attendance of girls in Berlin at continuation schools. Compulsory attendance comes into force as from 1st April, 1913—

All unmarried workers (apprentices, improvers, assistants, etc.) engaged in industrial or commercial occupations, whether in work or out of work, are required to attend a municipal continuation school from the time they leave the compulsory day school until the end of the school half-year, in which they complete their seventeenth year.

Instruction includes *trade subjects* (Berufskunde) and *citizenship and hygiene* (Lebenskunde), *arithmetic, drawing and domestic subjects*. There will be 240 hours' instruction in the year.

Pupils may be required to attend until the completion of their eighteenth year if they do not by the end of their seventeenth year attain a satisfactory standard. Certain exemptions are allowed—

- (1) Apprentices and assistants of chemists.
- (2) Persons employed in shipping, legal, railway, emigration offices, etc., and in the public services.

* See Board of Education pamphlet No. 18, Compulsory Continuation Schools in Germany.

- (3) Girls having passed through higher girls' schools, or certain classes of secondary schools.
- (4) Pupils at professional or trade schools.
- (5) Unfit, physically or mentally, may be excluded.
- (6) Aliens may be excluded.
- (7) Convicted or undesirable may be excluded.

Voluntary pupils will be admitted on payment. All attending compulsorily are to be admitted free.

All employers are required to notify within six days of the engagement of a girl of compulsory continuation school age, and are required to let them off work in time for them to appear punctually and *clean* at the school.

It is estimated that there is a sufficient supply of teachers for girls in clerical and trade work. For the shop assistants and unskilled workers extra teachers will be required, and classes for preparing these are being held.

The regulations require girls in skilled trades to give one and a half hours weekly to domestic subjects; girls in unskilled work to give three hours weekly to these subjects.

It will take three years before the full complement of girls are in attendance.

It is estimated that 4,500 will join each half year. The total number will, therefore, be 27,000.

The 1907 industrial census of Berlin gives—398,532 men, 157,226 women employed in industrial occupations.

In addition to unskilled workers in factories of various kinds, clerks and shop assistants, trades mentioned as employing girls and women are—photography, millinery, dressmaking, underclothing making, embroidery, bookbinding, hairdressing, goldsmithing. A few also in watchmaking, optical instrument making, baking, lock-making, cabinet-making, glaziering.

At a meeting of teachers, October, 1912, the plea was strongly put forward that the continuation school should give definite trade instruction to the girls, and that the schools should be organised on somewhat similar lines to the boys' schools for this purpose.

The teachers pointed out that the range of subjects required by the regulations was too wide, and that a "misch masch" was likely to result, of little value.

It was also pointed out that, if domestic subjects were to be taught, it would be better to concentrate them into one (or more) half-year rather than spread them in one and a half hour lessons once a week throughout the course.

As these classes do not begin until April, 1913, it yet remains to be seen how the details will work out, and to what extent the regulations will require modification.

F. H. D.

APPENDIX I.

(a) *List of schools of art and schools of arts and crafts maintained by the Council—*

- L.C.C. Camberwell School of Arts and Crafts, Peckham-road, S.E.
- L.C.C. Camden School of Art, Dalmeny-avenue, Camden-road, N.
- L.C.C. Central School of Arts and Crafts, Southampton-row, W.C.
- L.C.C. Clapham School of Art, Edgeley-road, Clapham, S.W.
- L.C.C. Hammersmith School of Arts and Crafts, Lime-grove, Shepherd's-bush, W.
- L.C.C. Putney School of Art, Oxford-road, Putney, S.W.

(b) *List of science, art and commercial centres—*

- Barnsbury-park, Barnsbury, N. (Com. and S. and A.).
- Barrett-street, Oxford-street, W. (Com.).
- Blackheath-road, Greenwich, S.E. (Com. and S. and A.).
- Bloomfield-road, Plumstead, S.E. (Com.).
- Brockley-road, Brockley, S.E. (Com. and S. and A.).
- Brownhill-road, Catford, S.E. (Com. and S. and A.).
- Cassland-road, South Hackney, N.E. (Com. and A.).
- Cavendish-road, Balham, S.W. (Com. and A.).
- Choumert-road, Peckham, S.E. (Com. and S.).
- Essendine-road, Maida-hill, W. (Com. and S. and A.).
- Haverstock-hill, Haverstock-hill, N.W. (Com. and A.).
- "Hugh Myddelton," The, Corporation-row, Clerkenwell, E.C. (Com.).
- Kennington-road, S.E. (Com.).
- Kilmorie-road, Forest-hill, S.E. (Com. and A.).
- "Lavender-hill," The, Amies-street, Lavender-hill, S.W. (A.).
- Malmesbury-road, Bow, E. (Com.).
- "Marlborough," The, Draycott-avenue, Chelsea, S.W. (Com. and A.).
- Monnow-road, Bermondsey, S.E. (Com. and A.).
- Myrdle-street, Stepney, E. (Com. and A.).
- "Oliver Goldsmith," The, Peckham-road, S.E. (Com.).
- "Paragon" The, New Kent-road, S.E. (Com. and A.).
- Plough-road, Clapham-junction, S.W. (Com.).
- Queen's-road, Dalston, N.E. (Com. and A.).
- St. George's-row, Ebury-bridge, Pimlico, S.W. (Com.).
- Sherbrooke-road, Fulham, S.W. (Com.).
- "Stanley," The, Camden-street, Camden-town, N.W. (Com. and A.).
- Sussex-road, Brixton, S.W. (Com. and S. and A.).
- Thomas-street, Limehouse, E. (Com. and S. and A.).
- Upper Hornsey-road, Holloway, N. (Com. and A.).
- William-street, Hammersmith-road, W. (Com. and A.).

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